NATIONAL BUREAU OF STANDARDS REPORT

5162

TABLES RELATING TO DEGRADATION OF INFORMATION

Semi-Annual Progress Report
July 1 to December 31, 1956

PART I

To
SIGNAL CORPS ENGINEERING LABORATORIES

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

U. S. DEPARTMENT OF COMMERCE

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NATIONAL BUREAU OF STANDARDS REPORT

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July 1 to December 31, 1956

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To
Evans Signal Laboratory
Signal Corps Engineering Laboratories
under the terms of MIPR 55-2175-SC-91

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Preface

This report presents a set of tables and graphs of probabilities relating to an anti-aircraft defense situation in which the defensive forces receive information on some, but not all, of the attacking aircraft ("targets"). The magnitudes tabulated are defined at the beginning of each table. The tables cover a wide range of parameters; the graphs pertain only to selected values of the parameters.

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TABLE I

Loss in Attrition

Due to Degradation of Information

$$d(T,t) = E(T)-E(t) = T[1-(1-\frac{1-a}{T})^B] - t[1-(1-\frac{1-a}{t})^B]$$

for B = Number of batteries = 10, 20, 30, 40
T = " " targets = 5, 10, 15, 20
t = " " targets on which the defense is informed;
t/T = .2, .4, .6, .8
a = Probability that a target, if assigned to a battery, will survive fire from that battery (= engagement survival probability); given by

$$a = (1-p)^{m/B}$$

p = Characteristic (single-shot) kill probability = .2, .3, .5, .7, .9

m = Number of shots available to all batteries combined; m/B = shots per battery = 1, 2, ..., 8.

The function d(T,t) measures the following magnitude: Assume B batteries opposing T targets, where the batteries have information on only t targets. Each battery is assigned at random to one of the t targets, then stays assigned to it for the duration of the engagement, firing m/B rounds, each with kill probability p. (Thus a is the survival probability of a target assigned to one battery.) Then d measures the expected loss in attrition due to the degradation of information, i.e., the expected number of targets killed in the case of no degradation, minus the expected number of targets killed in the presence of degradation.

Selected values of this function are presented graphically in Figures 1-6, pp. 28-30.

$$E(T) - E(t)$$

$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
10	05	01	.2	00.8	01.6	02.2	02.6	02.8	03.0	03.1	03.2
10	05	01	.3	01.3	02.3	02.8	03.0	03.2	03.3	03.3	03.4
10	05	01	.5	02.3	03.0	03.3	03.4	03.4	03.4	03.5	03.5
10	05	01	.7	02.9	03.3	03.4	03.5	03.5	03.5	03.5	03.5
10	05	01	.9	03.3	03.4	03.5	03.5	03.5	03.5	03.5	03.5
10	05	02	.2	00.4	00.9	01.3	01.6	01.9	02.0	02.1	02.2
10	05	02	.3	00.7	01.4	01.8	02.1	02.2	02.3	02.3	02.4
10	05	02	.5	01.4	02.0	02.3	02.4	02.4	02.4	02.5	02.5
10	05	02	.7	01.9	02.3	02.4	02.5	02.5	02.5	02.5	02.5
10	05	02	.9	02.3	02.5	02.5	02.5	02.5	02.5	02.5	02.5
10	05	03	.2	00.2	00.5	00.7	00.9	01.1	01.2	01.2	01.3
10	05	03	.3	00.4	00.8	01.0	01.2	01.3	01.4	01.4	01.4
10	05	03	.5	00.7	01.2	01.4	01.4	01.5	01.5	01.5	01.5
10	05	03	.7	01.1	01.4	01.5	01.5	01.5	01.5	01.5	01.5
10	05	03	.9	01.4	01.5	01.5	01.5	01.5	01.5	01.5	01.5
10	05	04	.2	00.1	00.2	00.3	00.4	00.5	00.5	00.5	00.6
10	05	04	.3	00.1	00.3	00.4	00.5	00.6	00.6	00.6	00.7
10	05	04	.5	00.3	00.5	00.6	00.6	00.7	00.7	00.7	00.7
10	05	04	.7	00.5	00.6	00.7	00.7	00.7	00.7	00.7	00.7
10	05	04	.9	00.6	00.7	00.7	00.7	00.7	00.7	00.7	00.7
10	10	02	.2	00.5	01.3	02.1	02.6	03.0	03.4	03.6	03.8
10	10	02	.3	01.0	02.2	03.0	03.5	03.8	04.0	04.2	04.3
10	10	02	.5	02.1	03.4	04.0	04.3	04.4	04.5	04.5	04.5
10	10	02	.7	03.2	04.2	04.4	04.5	04.5	04.5	04.5	04.5
10	10	02	.9	04.1	04.5	04.5	04.5	04.5	04.5	04.5	04.5
10	10	04	.2	00.2	00.6	01.0	01.4	01.6	01.9	02.1	02.2
10	10	04	.3	00.5	01.1	01.6	01.9	02.2	02.4	02.5	02.6
10	10	04	.5	01.1	01.9	02.3	02.5	02.6	02.7	02.7	02.7
10	10	04	.7	01.7	02.5	02.7	02.7	02.7	02.7	02.7	02.7
10	10	04	.9	02.4	02.7	02.7	02.7	02.7	02.7	02.7	02.7
10	10	06	.2	00.1	00.3	00.5	00.7	00.8	01.0	01.1	01.2
10	10	06	.3	00.2	00.5	00.8	01.0	01.2	01.3	01.3	01.4
10	10	06	.5	00.5	01.0	01.2	01.4	01.4	01.5	01.5	01.5
10	10	06	.7	00.9	01.3	01.4	01.5	01.5	01.5	01.5	01.5
10	10	06	.9	01.3	01.5	01.5	01.5	01.5	01.5	01.5	01.5
10	10	08	.2	00.0	00.1	00.2	00.3	00.3	00.4	00.4	00.5
10	10	08	.3	00.1	00.2	00.3	00.4	00.5	00.5	00.5	00.6
10	10	08	.5	00.2	00.4	00.5	00.6	00.6	00.6	00.6	00.6
10	10	08	.7	00.4	00.5	00.6	00.6	00.6	00.6	00.6	00.6
10	10	08	.9	00.5	00.6	00.6	00.6	00.6	00.6	00.6	00.6

$$E(T)-E(t)$$
$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
10	15	03	.2	00.4	01.1	01.7	02.3	02.8	03.1	03.4	03.6
10	15	03	.3	00.8	01.9	02.7	03.2	03.6	03.9	04.1	04.2
10	15	03	.5	01.8	03.2	03.9	04.2	04.4	04.4	04.5	04.5
10	15	03	.7	02.9	04.1	04.4	04.5	04.5	04.5	04.5	04.5
10	15	03	.9	04.0	04.5	04.5	04.5	04.5	04.5	04.5	04.5
10	15	06	.2	00.2	00.5	00.8	01.1	01.3	01.6	01.7	01.9
10	15	06	.3	00.3	00.9	01.3	01.6	01.9	02.0	02.2	02.2
10	15	06	.5	00.8	01.6	02.0	02.2	02.3	02.4	02.4	02.4
10	15	06	.7	01.4	02.1	02.4	02.4	02.4	02.4	02.4	02.4
10	15	06	.9	02.1	02.4	02.4	02.4	02.4	02.4	02.4	02.4
10	15	09	.2	00.1	00.2	00.4	00.5	00.7	00.8	00.9	00.9
10	15	09	.3	00.2	00.4	00.6	00.8	00.9	01.0	01.1	01.1
10	15	09	.5	00.4	00.8	01.0	01.1	01.2	01.2	01.2	01.2
10	15	09	.7	00.7	01.1	01.2	01.2	01.2	01.2	01.2	01.2
10	15	09	.9	01.1	01.2	01.2	01.2	01.2	01.2	01.2	01.2
10	15	12	.2	00.0	00.1	00.1	00.2	00.3	00.3	00.3	00.4
10	15	12	.3	00.1	00.2	00.2	00.3	00.4	00.4	00.4	00.5
10	15	12	.5	00.2	00.3	00.4	00.5	00.5	00.5	00.5	00.5
10	15	12	.7	00.3	00.4	00.5	00.5	00.5	00.5	00.5	00.5
10	15	12	.9	00.4	00.5	00.5	00.5	00.5	00.5	00.5	00.5
10	20	04	.2	00.3	00.9	01.5	02.0	02.4	02.8	03.1	03.3
10	20	04	.3	00.6	01.6	02.3	02.9	03.3	03.6	03.8	03.9
10	20	04	.5	01.5	02.9	03.6	03.9	04.1	04.2	04.2	04.2
10	20	04	.7	02.6	03.7	04.1	04.2	04.2	04.2	04.2	04.3
10	20	04	.9	03.7	04.2	04.2	04.2	04.3	04.3	04.3	04.3
10	20	08	.2	00.1	00.4	00.6	00.9	01.1	01.3	01.5	01.6
10	20	08	.3	00.3	00.7	01.1	01.4	01.6	01.7	01.9	01.9
10	20	08	.5	00.7	01.3	01.7	01.9	02.0	02.1	02.1	02.1
10	20	08	.7	01.2	01.8	02.0	02.1	02.1	02.1	02.1	02.1
10	20	08	.9	01.8	02.1	02.1	02.1	02.1	02.1	02.1	02.1
10	20	12	.2	00.1	00.2	00.3	00.4	00.5	00.6	00.7	00.8
10	20	12	.3	00.1	00.3	00.5	00.7	00.8	00.9	00.9	01.0
10	20	12	.5	00.3	00.6	00.8	00.9	01.0	01.0	01.0	01.0
10	20	12	.7	00.6	00.9	01.0	01.0	01.0	01.1	01.1	01.1
10	20	12	.9	00.9	01.0	01.1	01.1	01.1	01.1	01.1	01.1
10	20	16	.2	00.0	00.1	00.1	00.2	00.2	00.2	00.3	00.3
10	20	16	.3	00.0	00.1	00.2	00.3	00.3	00.3	00.4	00.4
10	20	16	.5	00.1	00.3	00.3	00.4	00.4	00.4	00.4	00.4
10	20	16	.7	00.2	00.4	00.4	00.4	00.4	00.4	00.4	00.4
10	20	16	.9	00.3	00.4	00.4	00.4	00.4	00.4	00.4	00.4

$$E(T)-E(t)$$

$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
20	05	01	.2	01.8	02.9	03.4	03.6	03.7	03.8	03.8	03.9
20	05	01	.3	02.6	03.4	03.7	03.8	03.9	03.9	03.9	03.9
20	05	01	.5	03.4	03.8	03.9	03.9	03.9	03.9	03.9	03.9
20	05	01	.7	03.8	03.9	03.9	03.9	03.9	03.9	03.9	03.9
20	05	01	.9	03.9	03.9	03.9	03.9	03.9	03.9	03.9	03.9
20	05	02	.2	01.0	01.9	02.4	02.6	02.7	02.8	02.8	02.9
20	05	02	.3	01.6	02.4	02.7	02.8	02.9	02.9	02.9	02.9
20	05	02	.5	02.4	02.8	02.9	02.9	02.9	02.9	02.9	02.9
20	05	02	.7	02.8	02.9	02.9	02.9	02.9	02.9	02.9	02.9
20	05	02	.9	02.9	02.9	02.9	02.9	02.9	02.9	02.9	02.9
20	05	03	.2	00.5	01.1	01.4	01.6	01.7	01.8	01.8	01.9
20	05	03	.3	00.9	01.5	01.7	01.8	01.9	01.9	01.9	01.9
20	05	03	.5	01.5	01.8	01.9	01.9	01.9	01.9	01.9	01.9
20	05	03	.7	01.8	01.9	01.9	01.9	01.9	01.9	01.9	01.9
20	05	03	.9	01.9	01.9	01.9	01.9	01.9	01.9	01.9	01.9
20	05	04	.2	00.2	00.5	00.7	00.8	00.8	00.9	00.9	00.9
20	05	04	.3	00.4	00.7	00.8	00.9	00.9	00.9	00.9	00.9
20	05	04	.5	00.7	00.9	00.9	00.9	00.9	01.0	01.0	01.0
20	05	04	.7	00.8	00.9	00.9	01.0	01.0	01.0	01.0	01.0
20	05	04	.9	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	10	02	.2	01.6	03.2	04.3	05.0	05.5	05.8	06.1	06.2
20	10	02	.3	02.6	04.5	05.4	05.9	06.2	06.4	06.5	06.6
20	10	02	.5	04.4	05.9	06.4	06.6	06.7	06.7	06.8	06.8
20	10	02	.7	05.7	06.5	06.7	06.8	06.8	06.8	06.8	06.8
20	10	02	.9	06.5	06.8	06.8	06.8	06.8	06.8	06.8	06.8
20	10	04	.2	00.8	01.8	02.6	03.2	03.6	03.9	04.1	04.3
20	10	04	.3	01.4	02.8	03.5	04.0	04.3	04.5	04.6	04.6
20	10	04	.5	02.7	04.0	04.4	04.6	04.7	04.8	04.8	04.8
20	10	04	.7	03.7	04.5	04.7	04.8	04.8	04.8	04.8	04.8
20	10	04	.9	04.5	04.8	04.8	04.8	04.8	04.8	04.8	04.8
20	10	06	.2	00.4	00.9	01.4	01.8	02.1	02.3	02.4	02.5
20	10	06	.3	00.7	01.5	02.0	02.3	02.5	02.7	02.8	02.8
20	10	06	.5	01.5	02.3	02.7	02.8	02.9	02.9	02.9	02.9
20	10	06	.7	02.2	02.7	02.9	02.9	02.9	02.9	02.9	02.9
20	10	06	.9	02.7	02.9	02.9	02.9	02.9	02.9	02.9	02.9
20	10	08	.2	00.1	00.4	00.6	00.8	00.9	01.0	01.1	01.1
20	10	08	.3	00.3	00.6	00.9	01.0	01.1	01.2	01.2	01.3
20	10	08	.5	00.6	01.0	01.2	01.3	01.3	01.3	01.3	01.3
20	10	08	.7	00.9	01.2	01.3	01.3	01.3	01.3	01.3	01.3
20	10	08	.9	01.2	01.3	01.3	01.3	01.3	01.3	01.3	01.3

$$E(T)-E(t)$$

$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

				m/B							
B	T	t	p	1	2	3	4	5	6	7	8
20	15	03	.2	01.3	03.0	04.3	05.3	06.0	06.5	06.9	07.2
20	15	03	.3	02.4	04.6	05.9	06.7	07.2	07.5	07.8	07.9
20	15	03	.5	04.5	06.6	07.5	07.9	08.1	08.1	08.2	08.2
20	15	03	.7	06.2	07.7	08.1	08.2	08.2	08.2	08.2	08.2
20	15	03	.9	07.7	08.2	08.2	08.2	08.2	08.2	08.2	08.2
20	15	06	.2	00.6	01.5	02.4	03.0	03.6	04.0	04.3	04.5
20	15	06	.3	01.1	02.5	03.5	04.1	04.5	04.8	05.0	05.1
20	15	06	.5	02.4	04.0	04.7	05.1	05.2	05.3	05.3	05.4
20	15	06	.7	03.7	04.9	05.3	05.3	05.4	05.4	05.4	05.4
20	15	06	.9	04.9	05.3	05.4	05.4	05.4	05.4	05.4	05.4
20	15	09	.2	00.3	00.8	01.2	01.6	01.9	02.2	02.4	02.5
20	15	09	.3	00.6	01.3	01.9	02.2	02.5	02.7	02.8	02.9
20	15	09	.5	01.3	02.2	02.7	02.9	03.0	03.0	03.1	03.1
20	15	09	.7	02.0	02.8	03.0	03.1	03.1	03.1	03.1	03.1
20	15	09	.9	02.7	03.0	03.1	03.1	03.1	03.1	03.1	03.1
20	15	12	.2	00.1	00.3	00.5	00.7	00.8	00.9	01.0	01.1
20	15	12	.3	00.2	00.5	00.8	00.9	01.1	01.1	01.2	01.2
20	15	12	.5	00.5	00.9	01.1	01.2	01.3	01.3	01.3	01.3
20	15	12	.7	00.8	01.2	01.3	01.3	01.3	01.3	01.3	01.3
20	15	12	.9	01.2	01.3	01.3	01.3	01.3	01.3	01.3	01.3
20	20	04	.2	01.1	02.7	04.1	05.2	06.0	06.6	07.1	07.5
20	20	04	.3	02.1	04.3	05.9	06.8	07.5	07.9	08.2	08.4
20	20	04	.5	04.2	06.8	07.9	08.4	08.6	08.7	08.8	08.8
20	20	04	.7	06.3	08.1	08.6	08.8	08.8	08.8	08.8	08.8
20	20	04	.9	08.1	08.8	08.8	08.8	08.8	08.8	08.8	08.8
20	20	08	.2	00.5	01.3	02.1	02.7	03.3	03.7	04.1	04.3
20	20	08	.3	00.9	02.2	03.2	03.9	04.3	04.7	04.9	05.0
20	20	08	.5	02.1	03.8	04.6	05.0	05.2	05.3	05.3	05.4
20	20	08	.7	03.5	04.8	05.2	05.3	05.4	05.4	05.4	05.4
20	20	08	.9	04.8	05.3	05.4	05.4	05.4	05.4	05.4	05.4
20	20	12	.2	00.2	00.6	01.0	01.4	01.7	01.9	02.1	02.3
20	20	12	.3	00.4	01.1	01.6	02.0	02.3	02.5	02.6	02.7
20	20	12	.5	01.1	02.0	02.5	02.7	02.8	02.9	02.9	02.9
20	20	12	.7	01.8	02.6	02.8	02.9	02.9	02.9	02.9	02.9
20	20	12	.9	02.6	02.9	02.9	02.9	02.9	02.9	02.9	02.9
20	20	16	.2	00.1	00.2	00.4	00.6	00.7	00.8	00.9	00.9
20	20	16	.3	00.2	00.4	00.7	00.8	00.9	01.0	01.1	01.1
20	20	16	.5	00.4	00.8	01.0	01.1	01.2	01.2	01.2	01.2
20	20	16	.7	00.7	01.1	01.2	01.2	01.2	01.2	01.2	01.2
20	20	16	.9	01.1	01.2	01.2	01.2	01.2	01.2	01.2	01.2

$$E(T)-E(t)$$

$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
30	05	01	.2	02.5	03.5	03.8	03.9	03.9	04.0	04.0	04.0
30	05	01	.3	03.2	03.8	03.9	04.0	04.0	04.0	04.0	04.0
30	05	01	.5	03.8	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	01	.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	01	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	02	.2	01.6	02.5	02.8	02.9	02.9	03.0	03.0	03.0
30	05	02	.3	02.2	02.8	02.9	03.0	03.0	03.0	03.0	03.0
30	05	02	.5	02.8	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	02	.7	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	02	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.2	00.9	01.5	01.8	01.9	01.9	02.0	02.0	02.0
30	05	03	.3	01.3	01.8	01.9	02.0	02.0	02.0	02.0	02.0
30	05	03	.5	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	03	.7	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	03	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	04	.2	00.4	00.7	00.9	00.9	01.0	01.0	01.0	01.0
30	05	04	.3	00.6	00.9	00.9	01.0	01.0	01.0	01.0	01.0
30	05	04	.5	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	04	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	04	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	10	02	.2	02.6	04.7	05.8	06.4	06.8	07.0	07.2	07.3
30	10	02	.3	04.0	05.9	06.7	07.1	07.3	07.4	07.4	07.5
30	10	02	.5	05.9	07.0	07.4	07.5	07.5	07.6	07.6	07.6
30	10	02	.7	06.9	07.4	07.5	07.6	07.6	07.6	07.6	07.6
30	10	02	.9	07.4	07.6	07.6	07.6	07.6	07.6	07.6	07.6
30	10	04	.2	01.4	02.9	03.9	04.4	04.8	05.0	05.2	05.3
30	10	04	.3	02.4	04.0	04.7	05.1	05.3	05.4	05.4	05.5
30	10	04	.5	03.9	05.0	05.4	05.5	05.5	05.6	05.6	05.6
30	10	04	.7	04.9	05.4	05.5	05.6	05.6	05.6	05.6	05.6
30	10	04	.9	05.4	05.6	05.6	05.6	05.6	05.6	05.6	05.6
30	10	06	.2	00.7	01.6	02.2	02.7	02.9	03.1	03.2	03.3
30	10	06	.3	01.3	02.3	02.9	03.2	03.3	03.4	03.5	03.5
30	10	06	.5	02.3	03.1	03.4	03.5	03.6	03.6	03.6	03.6
30	10	06	.7	03.0	03.5	03.6	03.6	03.6	03.6	03.6	03.6
30	10	06	.9	03.5	03.6	03.6	03.6	03.6	03.6	03.6	03.6
30	10	08	.2	00.3	00.7	01.0	01.2	01.3	01.4	01.5	01.6
30	10	08	.3	00.5	01.0	01.3	01.5	01.6	01.6	01.6	01.7
30	10	08	.5	01.0	01.5	01.6	01.7	01.7	01.7	01.7	01.7
30	10	08	.7	01.4	01.6	01.7	01.7	01.7	01.7	01.7	01.7
30	10	08	.9	01.6	01.7	01.7	01.7	01.7	01.7	01.7	01.7

$$E(T)-E(t)$$

$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

B	T	5	p	m/B 1	2	3	4	5	6	7	8
30	15	03	.2	02.4	04.8	06.5	07.5	08.2	08.7	09.0	09.3
30	15	03	.3	03.9	06.7	08.1	08.8	09.3	09.6	09.7	09.9
30	15	03	.5	06.6	08.8	09.5	09.8	10.0	10.0	10.1	10.1
30	15	03	.7	08.4	09.7	10.0	10.1	10.1	10.1	10.1	10.1
30	15	03	.9	09.7	10.1	10.1	10.1	10.1	10.1	10.1	10.1
30	15	06	.2	01.1	02.7	03.9	04.8	05.4	05.8	06.1	06.4
30	15	06	.3	02.1	04.1	05.3	06.0	06.4	06.6	06.8	06.9
30	15	06	.5	04.0	05.9	06.6	06.9	07.0	07.1	07.1	07.1
30	15	06	.7	05.6	06.7	07.0	07.1	07.1	07.1	07.1	07.1
30	15	06	.9	06.7	07.1	07.1	07.1	07.1	07.1	07.1	07.1
30	15	09	.2	00.6	01.4	02.1	02.7	03.1	03.4	03.6	03.8
30	15	09	.3	01.1	02.3	03.0	03.5	03.8	04.0	04.1	04.2
30	15	09	.5	02.2	03.4	03.9	04.2	04.3	04.3	04.3	04.4
30	15	09	.7	03.2	04.1	04.3	04.3	04.4	04.4	04.4	04.4
30	15	09	.9	04.0	04.3	04.4	04.4	04.4	04.4	04.4	04.4
30	15	12	.2	00.2	00.6	00.9	01.1	01.3	01.5	01.6	01.7
30	15	12	.3	00.4	00.9	01.3	01.5	01.7	01.8	01.8	01.9
30	15	12	.5	00.9	01.5	01.8	01.9	01.9	02.0	02.0	02.0
30	15	12	.7	01.4	01.8	01.9	02.0	02.0	02.0	02.0	02.0
30	15	12	.9	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	20	04	.2	02.1	04.6	06.5	07.9	08.8	09.5	10.0	10.4
30	20	04	.3	03.7	06.9	08.7	09.8	10.4	10.8	11.1	11.3
30	20	04	.5	06.7	09.7	10.8	11.3	11.5	11.6	11.7	11.7
30	20	04	.7	09.1	11.1	11.5	11.7	11.7	11.7	11.7	11.7
30	20	04	.9	11.0	11.6	11.7	11.7	11.7	11.7	11.7	11.7
30	20	08	.2	00.9	02.4	03.7	04.7	05.4	06.0	06.4	06.7
30	20	08	.3	01.8	03.9	05.3	06.1	06.7	07.1	07.3	07.5
30	20	08	.5	03.8	06.1	07.0	07.5	07.7	07.8	07.8	07.8
30	20	08	.7	05.6	07.3	07.7	07.8	07.8	07.8	07.9	07.9
30	20	08	.9	07.2	07.8	07.8	07.9	07.9	07.9	07.9	07.9
30	20	12	.2	00.5	01.2	01.9	02.5	03.0	03.3	03.6	03.8
30	20	12	.3	00.9	02.0	02.9	03.4	03.8	04.0	04.2	04.3
30	20	12	.5	02.0	03.4	04.0	04.3	04.5	04.5	04.6	04.6
30	20	12	.7	03.1	04.2	04.5	04.6	04.6	04.6	04.6	04.6
30	20	12	.9	04.1	04.5	04.6	04.6	04.6	04.6	04.6	04.6
30	20	16	.2	00.2	00.5	00.8	01.0	01.2	01.4	01.5	01.6
30	20	16	.3	00.4	00.8	01.2	01.5	01.6	01.8	01.8	01.9
30	20	16	.5	00.8	01.4	01.7	01.9	01.9	02.0	02.0	02.0
30	20	16	.7	01.3	01.8	02.0	02.0	02.0	02.0	02.0	02.0
30	20	16	.9	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0

$$E(T)-E(t)$$

$$E(T) = T\left[1-\left(1-\frac{1-a}{T}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
40	05	01	.2	03.0	03.7	03.9	04.0	04.0	04.0	04.0	04.0
40	05	01	.3	03.6	03.9	04.0	04.0	04.0	04.0	04.0	04.0
40	05	01	.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	01	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	01	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	02	.2	02.1	02.7	02.9	03.0	03.0	03.0	03.0	03.0
40	05	02	.3	02.6	02.9	03.0	03.0	03.0	03.0	03.0	03.0
40	05	02	.5	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	02	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	02	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.2	01.2	01.8	01.9	02.0	02.0	02.0	02.0	02.0
40	05	03	.3	01.6	01.9	02.0	02.0	02.0	02.0	02.0	02.0
40	05	03	.5	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	03	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	03	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	04	.2	00.5	00.8	00.9	01.0	01.0	01.0	01.0	01.0
40	05	04	.3	00.8	00.9	01.0	01.0	01.0	01.0	01.0	01.0
40	05	04	.5	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	04	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	04	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	10	02	.2	03.6	05.7	06.6	07.1	07.4	07.5	07.6	07.7
40	10	02	.3	05.0	06.8	07.3	07.6	07.7	07.8	07.8	07.8
40	10	02	.5	06.7	07.6	07.7	07.8	07.8	07.8	07.8	07.8
40	10	02	.7	07.5	07.8	07.8	07.8	07.9	07.9	07.9	07.9
40	10	02	.9	07.8	07.8	07.9	07.9	07.9	07.9	07.9	07.9
40	10	04	.2	02.1	03.8	04.7	05.1	05.4	05.5	05.6	05.7
40	10	04	.3	03.2	04.8	05.3	05.6	05.7	05.8	05.8	05.8
40	10	04	.5	04.7	05.6	05.7	05.8	05.8	05.8	05.8	05.8
40	10	04	.7	05.5	05.8	05.8	05.8	05.9	05.9	05.9	05.9
40	10	04	.9	05.8	05.8	05.9	05.9	05.9	05.9	05.9	05.9
40	10	06	.2	01.1	02.2	02.8	03.2	03.4	03.6	03.6	03.7
40	10	06	.3	01.8	02.9	03.4	03.6	03.7	03.8	03.8	03.8
40	10	06	.5	02.9	03.6	03.8	03.8	03.8	03.8	03.9	03.9
40	10	06	.7	03.5	03.8	03.8	03.9	03.9	03.9	03.9	03.9
40	10	06	.9	03.8	03.8	03.9	03.9	03.9	03.9	03.9	03.9
40	10	08	.2	00.4	01.0	01.3	01.5	01.6	01.7	01.8	01.8
40	10	08	.3	00.8	01.3	01.6	01.7	01.8	01.8	01.8	01.9
40	10	08	.5	01.3	01.7	01.8	01.9	01.9	01.9	01.9	01.9
40	10	08	.7	01.7	01.8	01.9	01.9	01.9	01.9	01.9	01.9
40	10	08	.9	01.8	01.9	01.9	01.9	01.9	01.9	01.9	01.9

$$E(T)-E(t)$$

$$E(T) = T[1-(1-\frac{1-a}{T})^{B}]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
40	15	03	.2	03.4	06.3	08.0	09.0	09.6	10.0	10.3	10.5
40	15	03	.3	05.4	08.2	09.5	10.1	10.5	10.7	10.8	10.9
40	15	03	.5	08.1	10.1	10.6	10.9	11.0	11.0	11.0	11.0
40	15	03	.7	09.8	10.8	11.0	11.0	11.0	11.0	11.0	11.1
40	15	03	.9	10.7	11.0	11.0	11.1	11.1	11.1	11.1	11.1
40	15	06	.2	01.8	03.8	05.2	06.1	06.7	07.0	07.3	07.5
40	15	06	.3	03.1	05.4	06.6	07.2	07.5	07.7	07.8	07.9
40	15	06	.5	05.3	07.1	07.7	07.9	08.0	08.0	08.0	08.0
40	15	06	.7	06.8	07.8	08.0	08.0	08.0	08.1	08.1	08.1
40	15	06	.9	07.7	08.0	08.1	08.1	08.1	08.1	08.1	08.1
40	15	09	.2	00.9	02.1	03.0	03.6	04.0	04.3	04.5	04.7
40	15	09	.3	01.6	03.1	03.9	04.4	04.7	04.8	04.9	05.0
40	15	09	.5	03.0	04.3	04.8	05.0	05.1	05.1	05.1	05.1
40	15	09	.7	04.1	04.9	05.1	05.1	05.1	05.1	05.1	05.1
40	15	09	.9	04.9	05.1	05.1	05.1	05.1	05.1	05.1	05.1
40	15	12	.2	00.4	00.9	01.3	01.6	01.8	02.0	02.1	02.1
40	15	12	.3	00.7	01.4	01.8	02.0	02.1	02.2	02.3	02.3
40	15	12	.5	01.3	02.0	02.2	02.3	02.4	02.4	02.4	02.4
40	15	12	.7	01.9	02.3	02.4	02.4	02.4	02.4	02.4	02.4
40	15	12	.9	02.3	02.4	02.4	02.4	02.4	02.4	02.4	02.4
40	20	04	.2	03.1	06.4	08.6	10.0	10.9	11.6	12.0	12.3
40	20	04	.3	05.3	08.9	10.7	11.8	12.3	12.7	12.9	13.1
40	20	04	.5	08.8	11.7	12.7	13.1	13.3	13.3	13.4	13.4
40	20	04	.7	11.2	12.9	13.3	13.4	13.4	13.4	13.4	13.4
40	20	04	.9	12.8	13.4	13.4	13.4	13.4	13.4	13.4	13.4
40	20	08	.2	01.5	03.6	05.2	06.3	07.1	07.7	08.1	08.4
40	20	08	.3	02.8	05.5	07.0	07.9	08.4	08.8	09.0	09.2
40	20	08	.5	05.3	07.8	08.7	09.1	09.3	09.4	09.4	09.4
40	20	08	.7	07.4	09.0	09.3	09.4	09.5	09.5	09.5	09.5
40	20	08	.9	08.9	09.4	09.5	09.5	09.5	09.5	09.5	09.5
40	20	12	.2	00.7	01.9	02.8	03.6	04.1	04.5	04.8	05.0
40	20	12	.3	01.4	03.0	04.0	04.6	05.0	05.3	05.4	05.6
40	20	12	.5	02.9	04.6	05.2	05.5	05.7	05.7	05.8	05.8
40	20	12	.7	04.3	05.4	05.7	05.8	05.8	05.8	05.8	05.8
40	20	12	.9	05.4	05.8	05.8	05.8	05.8	05.8	05.8	05.8
40	20	16	.2	00.3	00.8	01.2	01.5	01.8	02.0	02.1	02.2
40	20	16	.3	00.6	01.3	01.7	02.0	02.2	02.4	02.5	02.5
40	20	16	.5	01.2	02.0	02.3	02.5	02.6	02.6	02.6	02.6
40	20	16	.7	01.9	02.4	02.6	02.6	02.6	02.6	02.6	02.6
40	20	16	.9	02.4	02.6	02.6	02.6	02.6	02.6	02.6	02.6

TABLE II

Remaining Attrition

After Degradation of Information

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

for B = Number of batteries = 10, 20, 30, 40
T = " " targets = 5, 10, 15, 20
t = " " targets on which the defense is informed; t/T = .2, .4, .6, .8
a = Probability that a target, if assigned to a battery, will survive fire from that battery (= engagement survival probability); given by

$$a = (1-p)^{m/B}$$

p = Characteristic (single-shot) kill probability = .2, .3, .5, .7, .9
m = Number of shots available to all batteries combined; m/B = shots per battery = 1, 2, ..., 8.

This function E(t) measures the expected number of targets killed, under the same assumptions as those underlying Table I.

Selected values of this function are presented graphically in Figures 7-12, pp. 31-33.

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
10	05	01	.2	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	01	.3	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	01	.5	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	02	.2	01.3	01.7	01.9	01.9	02.0	02.0	02.0	02.0
10	05	02	.3	01.6	01.9	02.0	02.0	02.0	02.0	02.0	02.0
10	05	02	.5	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
10	05	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
10	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
10	05	03	.2	01.5	02.2	02.5	02.7	02.8	02.8	02.9	02.9
10	05	03	.3	02.0	02.5	02.7	02.8	02.9	02.9	02.9	02.9
10	05	03	.5	02.5	02.8	02.9	02.9	02.9	02.9	02.9	02.9
10	05	03	.7	02.8	02.9	02.9	02.9	02.9	02.9	02.9	02.9
10	05	03	.9	02.9	02.9	02.9	02.9	02.9	02.9	02.9	02.9
10	05	04	.2	01.6	02.4	02.9	03.2	03.4	03.5	03.6	03.6
10	05	04	.3	02.2	03.0	03.3	03.5	03.6	03.7	03.7	03.7
10	05	04	.5	02.9	03.5	03.7	03.7	03.8	03.8	03.8	03.8
10	05	04	.7	03.4	03.7	03.8	03.8	03.8	03.8	03.8	03.8
10	05	04	.9	03.7	03.8	03.8	03.8	03.8	03.8	03.8	03.8
10	10	02	.2	01.3	01.7	01.9	01.9	02.0	02.0	02.0	02.0
10	10	02	.3	01.6	01.9	02.0	02.0	02.0	02.0	02.0	02.0
10	10	02	.5	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
10	10	02	.7	02.0	02.0	02.0	02.8	02.0	02.0	02.0	02.8
10	10	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
10	10	04	.2	01.6	02.4	02.9	03.2	03.4	03.5	03.6	03.6
10	10	04	.3	02.2	03.0	03.3	03.5	03.6	03.7	03.7	03.7
10	10	04	.5	02.9	03.5	03.7	03.7	03.8	03.8	03.8	03.8
10	10	04	.7	03.4	03.7	03.8	03.8	03.8	03.8	03.8	03.8
10	10	04	.9	03.7	03.8	03.8	03.8	03.8	03.8	03.8	03.8
10	10	06	.2	01.7	02.8	03.4	03.9	04.2	04.4	04.5	04.7
10	10	06	.3	02.4	03.5	04.1	04.5	04.7	04.8	04.9	04.9
10	10	06	.5	03.5	04.4	04.8	04.9	05.0	05.0	05.0	05.0
10	10	06	.7	04.3	04.8	05.0	05.0	05.0	05.0	05.0	05.0
10	10	06	.9	04.8	05.0	05.0	05.0	05.0	05.0	05.0	05.0
10	10	08	.2	01.8	03.0	03.7	04.3	04.7	05.0	05.2	05.3
10	10	08	.3	02.5	03.9	04.6	05.1	05.3	05.5	05.6	05.7
10	10	08	.5	03.8	05.0	05.5	05.7	05.8	05.8	05.9	05.9
10	10	08	.7	04.8	05.6	05.8	05.9	05.9	05.9	05.9	05.9
10	10	08	.9	05.6	05.9	05.9	05.9	05.9	05.9	05.9	05.9

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
10	15	03	.2	01.5	02.2	02.5	02.7	02.8	02.8	02.9	02.9
10	15	03	.3	02.0	02.5	02.7	02.8	02.9	02.9	02.9	02.9
10	15	03	.5	02.5	02.8	02.9	02.9	02.9	02.9	02.9	02.9
10	15	03	.7	02.8	02.9	02.9	02.9	02.9	02.9	02.9	02.9
10	15	03	.9	02.9	02.9	02.9	02.9	02.9	02.9	02.9	02.9
10	15	06	.2	01.7	02.8	03.4	03.9	04.2	04.4	04.5	04.7
10	15	06	.3	02.4	03.5	04.1	04.5	04.7	04.8	04.9	04.9
10	15	06	.5	03.5	04.4	04.8	04.9	05.0	05.0	05.0	05.0
10	15	06	.7	04.3	04.8	05.0	05.0	05.0	05.0	05.0	05.0
10	15	06	.9	04.8	05.0	05.0	05.0	05.0	05.0	05.0	05.0
10	15	09	.2	01.8	03.0	03.8	04.4	04.9	05.2	05.4	05.6
10	15	09	.3	02.6	04.0	04.8	05.3	05.6	05.8	05.9	06.0
10	15	09	.5	03.9	05.2	05.8	06.0	06.1	06.2	06.2	06.2
10	15	09	.7	05.0	05.9	06.1	06.2	06.2	06.2	06.2	06.2
10	15	09	.9	05.9	06.2	06.2	06.2	06.2	06.2	06.2	06.2
10	15	12	.2	01.9	03.2	04.1	04.8	05.3	05.6	05.9	06.2
10	15	12	.3	02.7	04.2	05.2	05.8	06.2	06.4	06.6	06.7
10	15	12	.5	04.2	05.7	06.4	06.7	06.8	06.9	06.9	07.0
10	15	12	.7	05.4	06.5	06.8	06.9	07.0	07.0	07.0	07.0
10	15	12	.9	06.5	06.9	07.0	07.0	07.0	07.0	07.0	07.0
10	20	04	.2	01.6	02.4	02.9	03.2	03.4	03.5	03.6	03.6
10	20	04	.3	02.2	03.0	03.3	03.5	03.6	03.7	03.7	03.7
10	20	04	.5	02.9	03.5	03.7	03.7	03.8	03.8	03.8	03.8
10	20	04	.7	03.4	03.7	03.8	03.8	03.8	03.8	03.8	03.8
10	20	04	.9	03.7	03.8	03.8	03.8	03.8	03.8	03.8	03.8
10	20	08	.2	01.8	03.0	03.7	04.3	04.7	05.0	05.2	05.3
10	20	08	.3	02.5	03.9	04.6	05.1	05.3	05.5	05.6	05.7
10	20	08	.5	03.8	05.0	05.5	05.7	05.8	05.8	05.9	05.9
10	20	08	.7	04.8	05.6	05.8	05.9	05.9	05.9	05.9	05.9
10	20	08	.9	05.6	05.9	05.9	05.9	05.9	05.9	05.9	05.9
10	20	12	.2	01.9	03.2	04.1	04.8	05.3	05.6	05.9	06.2
10	20	12	.3	02.7	04.2	05.2	05.8	06.2	06.4	06.6	06.7
10	20	12	.5	04.2	05.7	06.4	06.7	06.8	06.9	06.9	07.0
10	20	12	.7	05.4	06.5	06.8	06.9	07.0	07.0	07.0	07.0
10	20	12	.9	06.5	06.9	07.0	07.0	07.0	07.0	07.0	07.0
10	20	16	.2	01.9	03.3	04.3	05.0	05.6	06.0	06.4	06.6
10	20	16	.3	02.8	04.4	05.5	06.2	06.6	06.9	07.1	07.3
10	20	16	.5	04.4	06.1	06.9	07.3	07.4	07.5	07.6	07.6
10	20	16	.7	05.8	07.1	07.5	07.6	07.6	07.6	07.6	07.6
10	20	16	.9	07.0	07.6	07.6	07.6	07.6	07.6	07.6	07.6

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
20	15	03	.2	02.2	02.8	02.9	03.0	03.0	03.0	03.0	03.0
20	15	03	.3	02.6	02.9	03.0	03.0	03.0	03.0	03.0	03.0
20	15	03	.5	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	15	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	15	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	15	06	.2	03.0	04.3	04.9	05.2	05.4	05.6	5.6	05.7
20	15	06	.3	03.8	05.0	05.4	05.6	05.7	05.8	05.8	05.8
20	15	06	.5	04.9	05.6	05.7	05.8	05.8	05.8	05.8	05.8
20	15	06	.7	05.3	05.8	05.8	05.8	05.8	05.8	05.8	05.8
20	15	06	.9	05.8	05.8	05.8	05.8	05.8	05.8	05.8	05.8
20	15	09	.2	03.3	05.0	06.0	06.7	07.1	07.4	07.6	07.7
20	15	09	.3	04.4	06.2	07.0	07.5	07.7	07.9	08.0	08.0
20	15	09	.5	06.1	07.4	07.8	08.0	08.1	08.1	08.1	08.1
20	15	09	.7	07.2	07.9	08.1	08.1	08.1	08.1	08.1	08.1
20	15	09	.9	07.9	08.1	08.1	08.1	08.1	08.1	08.1	08.1
20	15	12	.2	03.4	05.5	06.8	07.6	08.2	08.6	08.9	09.1
20	15	12	.3	04.8	07.0	08.1	08.8	09.1	09.4	09.6	09.7
20	15	12	.5	06.9	08.7	09.4	09.6	09.8	09.8	09.9	09.9
20	15	12	.7	08.4	09.5	09.8	09.9	09.9	09.9	09.9	09.9
20	15	12	.9	09.5	09.9	09.9	09.9	09.9	09.9	09.9	09.9
20	20	04	.2	02.6	03.4	03.7	03.8	03.9	03.9	04.0	04.0
20	20	04	.3	03.2	03.7	03.9	03.9	04.0	04.0	04.0	04.0
20	20	04	.5	03.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0
20	20	04	.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	20	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	20	08	.2	03.2	04.8	05.7	06.3	06.6	06.8	07.0	07.1
20	20	08	.3	04.3	05.9	06.6	06.9	07.1	07.2	07.3	07.3
20	20	08	.5	05.8	06.9	07.2	07.3	07.4	07.4	07.4	07.4
20	20	08	.7	06.7	07.3	07.4	07.4	07.4	07.4	07.4	07.4
20	20	08	.9	07.3	07.4	07.4	07.4	07.4	07.4	07.4	07.4
20	20	12	.2	03.4	05.5	06.8	07.6	08.2	08.6	08.9	09.1
20	20	12	.3	04.8	07.0	08.1	08.8	09.1	09.4	09.6	09.7
20	20	12	.5	06.9	08.7	09.4	09.6	09.8	09.8	09.9	09.9
20	20	12	.7	08.4	09.5	09.8	09.9	09.9	09.9	09.9	09.9
20	20	12	.9	09.5	09.9	09.9	09.9	09.9	09.9	09.9	09.9
20	20	16	.2	03.6	05.9	07.4	08.5	09.2	09.8	10.2	10.5
20	20	16	.3	05.0	07.6	09.1	10.0	10.5	10.9	11.1	11.2
20	20	16	.5	07.5	09.9	10.8	11.2	11.4	11.5	11.6	11.6
20	20	16	.7	09.5	11.0	11.4	11.6	11.6	11.6	11.6	11.6
20	20	16	.9	11.0	11.5	11.6	11.6	11.6	11.6	11.6	11.6

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B = 1	2	3	4	5	6	7	8
20	05	01	.2	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.3	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.5	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	02	.2	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	02	.3	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	03	.2	02.2	02.8	02.9	03.0	03.0	03.0	03.0	03.0
20	05	03	.3	02.6	02.9	03.0	03.0	03.0	03.0	03.0	03.0
20	05	03	.5	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	05	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	05	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	05	04	.2	02.6	03.4	03.7	03.8	03.9	03.9	04.0	04.0
20	05	04	.3	03.2	03.7	03.9	03.9	04.0	04.0	04.0	04.0
20	05	04	.5	03.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0
20	05	04	.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	05	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	10	02	.2	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	10	02	.3	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	10	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	10	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	10	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	10	04	.2	02.6	03.4	03.7	03.8	03.9	03.9	04.0	04.0
20	10	04	.3	03.2	03.7	03.9	03.9	04.0	04.0	04.0	04.0
20	10	04	.5	03.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0
20	10	04	.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	10	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	10	06	.2	03.0	04.3	04.9	05.2	05.4	05.6	05.6	05.7
20	10	06	.3	03.8	05.0	05.4	05.6	05.7	05.8	05.8	05.8
20	10	06	.5	04.9	05.6	05.7	05.8	05.8	05.8	05.8	05.8
20	10	06	.7	05.5	05.8	05.8	05.8	05.8	05.8	05.8	05.8
20	10	06	.9	05.8	05.8	05.8	05.8	05.8	05.8	05.8	05.8
20	10	08	.2	03.2	04.8	05.7	06.3	06.6	06.8	07.0	07.1
20	10	08	.3	04.3	05.9	06.6	06.9	07.1	07.2	07.3	07.3
20	10	08	.5	05.8	06.9	07.2	07.3	07.4	07.4	07.4	07.4
20	10	08	.7	06.7	07.3	07.4	07.4	07.4	07.4	07.4	07.4
20	10	08	.9	07.3	07.4	07.4	07.4	07.4	07.4	07.4	07.4

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
30	05	01	.2	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.3	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.5	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	02	.2	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.3	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	03	.2	02.6	02.9	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.3	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.5	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	04	.2	03.1	03.8	03.9	04.0	04.0	04.0	04.0	04.0
30	05	04	.3	03.6	03.9	04.0	04.0	04.0	04.0	04.0	04.0
30	05	04	.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	10	02	.2	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	10	02	.3	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	10	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	10	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	10	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	10	04	.2	03.1	03.8	03.9	04.0	04.0	04.0	04.0	04.0
30	10	04	.3	03.6	03.9	04.0	04.0	04.0	04.0	04.0	04.0
30	10	04	.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	10	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	10	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	10	06	.2	03.8	05.1	05.5	05.7	05.8	05.9	05.9	05.9
30	10	06	.3	04.7	05.6	05.8	05.9	05.9	05.9	06.0	06.0
30	10	06	.5	05.6	05.9	05.9	06.0	06.0	06.0	06.0	06.0
30	10	06	.7	05.9	06.0	06.0	06.0	06.0	06.0	06.0	06.0
30	10	06	.9	06.0	06.0	06.0	06.0	06.0	06.0	06.0	06.0
30	10	08	.2	04.3	06.0	06.8	07.2	07.4	07.6	07.6	07.7
30	10	08	.3	05.5	06.9	07.4	07.6	07.7	07.8	07.8	07.8
30	10	08	.5	06.8	07.6	07.8	07.8	07.8	07.8	07.8	07.9
30	10	08	.7	07.5	07.8	07.8	07.8	07.9	07.9	07.9	07.9
30	10	08	.9	07.8	07.8	07.9	07.9	07.9	07.9	07.9	07.9

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
30	15	03	.2	02.6	02.9	03.0	03.0	03.0	03.0	03.0	03.0
30	15	03	.3	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	15	03	.5	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	15	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	15	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	15	06	.2	03.8	05.1	05.5	05.7	05.8	05.9	05.9	05.9
30	15	06	.3	04.7	05.6	05.8	05.9	05.9	05.9	06.0	06.0
30	15	06	.5	05.6	05.9	05.9	06.0	06.0	06.0	06.0	06.0
30	15	06	.7	05.9	06.0	06.0	06.0	06.0	06.0	06.0	06.0
30	15	06	.9	06.0	06.0	06.0	06.0	06.0	06.0	06.0	06.0
30	15	09	.2	04.4	06.4	07.3	07.8	08.1	08.3	08.4	08.5
30	15	09	.3	05.7	07.4	08.1	08.4	08.5	08.6	08.6	08.7
30	15	09	.5	07.4	08.3	08.6	08.7	08.7	08.7	08.7	08.7
30	15	09	.7	08.2	08.6	08.7	08.7	08.7	08.7	08.7	08.7
30	15	09	.9	08.6	08.7	08.7	08.7	08.7	08.7	08.7	08.7
30	15	12	.2	04.8	07.2	08.5	09.4	09.9	10.2	10.4	10.6
30	15	12	.3	06.4	08.7	09.8	10.3	10.6	10.8	10.9	11.0
30	15	12	.5	08.7	10.3	10.8	11.0	11.0	11.1	11.1	11.1
30	15	12	.7	10.0	10.9	11.1	11.1	11.1	11.1	11.1	11.1
30	15	12	.9	10.8	11.1	11.1	11.1	11.1	11.1	11.1	11.1
30	20	04	.2	03.1	03.8	03.9	04.0	04.0	04.0	04.0	04.0
30	20	04	.3	03.6	03.9	04.0	04.0	04.0	04.0	04.0	04.0
30	20	04	.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	20	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	20	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	20	08	.2	04.3	06.0	06.8	07.2	07.4	07.6	07.6	07.7
30	20	08	.3	05.5	06.9	07.4	07.6	07.7	07.8	07.8	07.8
30	20	08	.5	06.8	07.6	07.8	07.8	07.8	07.8	07.8	07.9
30	20	08	.7	07.5	07.8	07.8	07.8	07.9	07.9	07.9	07.9
30	20	08	.9	07.8	07.8	07.9	07.9	07.9	07.9	07.9	07.9
30	20	12	.2	04.8	07.2	08.5	09.4	09.9	10.2	10.4	10.6
30	20	12	.3	06.4	08.7	09.8	10.3	10.6	10.8	10.9	11.0
30	20	12	.5	08.7	10.3	10.8	11.0	11.0	11.1	11.1	11.1
30	20	12	.7	10.0	10.9	11.1	11.1	11.1	11.1	11.1	11.1
30	20	12	.9	10.8	11.1	11.1	11.1	11.1	11.1	11.1	11.1
30	20	16	.2	05.0	07.9	09.7	10.8	11.6	12.1	12.5	12.8
30	20	16	.3	06.9	09.9	11.5	12.3	12.8	13.1	13.3	13.4
30	20	16	.5	09.8	12.2	13.0	13.4	13.5	13.6	13.7	13.7
30	20	16	.7	11.8	13.2	13.6	13.7	13.7	13.7	13.7	13.7
30	20	16	.9	13.2	13.6	13.7	13.7	13.7	13.7	13.7	13.7

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
40	05	01	.2	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.3	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.5	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	02	.2	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.3	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	03	.2	02.8	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.3	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.5	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	04	.2	03.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.3	03.8	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.5	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	02	.2	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	02	.3	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	04	.2	03.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0
40	10	04	.3	03.8	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	04	.5	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	06	.2	04.5	05.5	05.8	05.9	05.9	06.0	06.0	06.0
40	10	06	.3	05.2	05.8	05.9	06.0	06.0	06.0	06.0	06.0
40	10	06	.5	05.8	06.0	06.0	06.0	06.0	06.0	06.0	06.0
40	10	06	.7	06.0	06.0	06.0	06.0	06.0	06.0	06.0	06.0
40	10	06	.9	06.0	06.0	06.0	06.0	06.0	06.0	06.0	06.0
40	10	08	.2	05.1	06.7	07.4	07.6	07.8	07.8	07.9	07.9
40	10	08	.3	06.3	07.4	07.7	07.9	07.9	07.9	07.9	07.9
40	10	08	.5	07.4	07.8	07.9	07.9	08.0	08.0	08.0	08.0
40	10	08	.7	07.8	07.9	08.0	08.0	08.0	08.0	08.0	08.0
40	10	08	.9	07.9	08.0	08.0	08.0	08.0	08.0	08.0	08.0

$$E(t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{B}\right]$$

B	T	t	p	m/B = 1	2	3	4	5	6	7	8
40	15	03	.2	02.8	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	15	03	.3	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	15	03	.5	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	15	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	15	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	15	06	.2	04.5	05.5	05.8	05.9	05.9	06.0	06.0	06.0
40	15	06	.3	05.2	05.8	05.9	06.0	06.0	06.0	06.0	06.0
40	15	06	.5	05.8	06.0	06.0	06.0	06.0	06.0	06.0	06.0
40	15	06	.7	06.0	06.0	06.0	06.0	06.0	06.0	06.0	06.0
40	15	06	.9	06.0	06.0	06.0	06.0	06.0	06.0	06.0	06.0
40	15	09	.2	05.3	07.2	08.0	08.4	08.6	08.7	08.8	08.8
40	15	09	.3	06.7	08.1	08.6	08.7	08.8	08.9	08.9	08.9
40	15	09	.5	08.1	08.7	08.8	08.9	08.9	08.9	08.9	08.9
40	15	09	.7	08.6	08.9	08.9	08.9	08.9	08.9	08.9	08.9
40	15	09	.9	08.9	08.9	08.9	08.9	08.9	08.9	08.9	08.9
40	15	12	.2	05.9	08.5	09.7	10.4	10.8	11.1	11.2	11.3
40	15	12	.3	07.6	09.9	10.7	11.1	11.3	11.4	11.5	11.5
40	15	12	.5	09.8	11.1	11.4	11.5	11.6	11.6	11.6	11.6
40	15	12	.7	10.9	11.5	11.6	11.6	11.6	11.6	11.6	11.6
40	15	12	.9	11.5	11.6	11.6	11.6	11.6	11.6	11.6	11.6
40	20	04	.2	03.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0
40	20	04	.3	03.8	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	20	04	.5	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	20	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	20	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	20	08	.2	05.1	06.7	07.4	07.6	07.8	07.8	07.9	07.9
40	20	08	.3	06.3	07.4	07.7	07.9	07.9	07.9	07.9	07.9
40	20	08	.5	07.4	07.8	07.9	07.9	08.0	08.0	08.0	08.0
40	20	08	.7	07.8	07.9	08.0	08.0	08.0	08.0	08.0	08.0
40	20	08	.9	07.9	08.0	08.0	08.0	08.0	08.0	08.0	08.0
40	20	12	.2	05.9	08.5	09.7	10.4	10.8	11.1	11.2	11.3
40	20	12	.3	07.6	09.9	10.7	11.1	11.3	11.4	11.5	11.5
40	20	12	.5	09.8	11.1	11.4	11.5	11.6	11.6	11.6	11.6
40	20	12	.7	10.9	11.5	11.6	11.6	11.6	11.6	11.6	11.6
40	20	12	.9	11.5	11.6	11.6	11.6	11.6	11.6	11.6	11.6
40	20	16	.2	06.3	09.6	11.4	12.4	13.1	13.6	13.9	14.1
40	20	16	.3	08.5	11.6	13.0	13.7	14.1	14.3	14.5	14.6
40	20	16	.5	11.5	13.7	14.3	14.6	14.7	14.7	14.8	14.8
40	20	16	.7	13.3	14.5	14.7	14.8	14.8	14.8	14.8	14.8
40	20	16	.9	14.4	14.8	14.8	14.8	14.8	14.8	14.8	14.8

TABLE III

Remaining Attrition

After Reserving Batteries to Allow for

Degradation of Information

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{T}\right)^{Bt/T}\right]$$

for B = Number of batteries = 10, 20, 30, 40
T = " " targets = 5, 10, 15, 20
t = " " targets on which the defense is informed;
t/T = .2, .4, .6, .8
a = Probability that a target, if assigned to a battery, will survive fire from that battery (= engagement survival probability); given by

$$a = (1-p)^{m/B}$$

p = Characteristic (single-shot) kill probability = .2, .3, .5, .7, .9
m = Number of shots available to all batteries combined; m/B = shots per battery = 1, 2, ..., 8.

The function D(T,t) measures the following magnitude: Assume a situation like that assumed in Table I, with the difference that not all batteries are assigned to targets. The defense, knowing that it has information about only a fraction of all targets, assigns only Bt/T of its B batteries, holding the remaining batteries in reserve. Then D measures the expected number of targets killed by the Bt/T assigned batteries.

Selected values of this function are presented graphically in Figures 13-18, pp. 34-36.

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{\frac{Bt}{T}}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
10	05	01	.2	00.4	00.6	00.7	00.8	00.9	00.9	01.0	01.0
10	05	01	.3	00.5	00.8	00.9	00.9	01.0	01.0	01.0	01.0
10	05	01	.5	00.8	00.9	01.0	01.0	01.0	01.0	01.0	01.0
10	05	01	.7	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
10	05	02	.2	00.7	01.1	01.3	01.5	01.6	01.7	01.7	01.8
10	05	02	.3	01.0	01.4	01.6	01.7	01.8	01.8	01.8	01.8
10	05	02	.5	01.4	01.7	01.8	01.8	01.9	01.9	01.9	01.9
10	05	02	.7	01.6	01.8	01.9	01.9	01.9	01.9	01.9	01.9
10	05	02	.9	01.8	01.9	01.9	01.9	01.9	01.9	01.9	01.9
10	05	03	.2	01.0	01.6	02.0	02.2	02.3	02.4	02.5	02.6
10	05	03	.3	01.4	02.0	02.3	02.5	02.6	02.6	02.7	02.7
10	05	03	.5	02.0	02.5	02.6	02.7	02.7	02.7	02.7	02.7
10	05	03	.7	02.4	02.7	02.7	02.7	02.7	02.7	02.7	02.7
10	05	03	.9	02.6	02.7	02.7	02.7	02.7	02.7	02.7	02.7
10	05	04	.2	01.3	02.1	02.6	02.9	03.1	03.2	03.3	03.4
10	05	04	.3	01.9	02.7	03.0	03.3	03.4	03.5	03.5	03.5
10	05	04	.5	02.6	03.2	03.4	03.5	03.6	03.6	03.6	03.6
10	05	04	.7	03.1	03.5	03.6	03.6	03.6	03.6	03.6	03.6
10	05	04	.9	03.5	03.6	03.6	03.6	03.6	03.6	03.6	03.6
10	10	02	.2	00.4	00.7	00.9	01.0	01.1	01.2	01.3	01.3
10	10	02	.3	00.6	00.9	01.1	01.2	01.3	01.4	01.4	01.4
10	10	02	.5	00.9	01.2	01.4	01.4	01.5	01.5	01.5	01.5
10	10	02	.7	01.2	01.4	01.5	01.5	01.5	01.5	01.5	01.5
10	10	02	.9	01.4	01.5	01.5	01.5	01.5	01.5	01.5	01.5
10	10	04	.2	00.7	01.3	01.6	01.9	02.1	02.2	02.3	02.4
10	10	04	.3	01.1	01.7	02.0	02.3	02.4	02.5	02.6	02.6
10	10	04	.5	01.7	02.3	02.5	02.6	02.7	02.7	02.7	02.7
10	10	04	.7	02.1	02.6	02.7	02.7	02.7	02.7	02.7	02.7
10	10	04	.9	02.6	02.7	02.7	02.7	02.7	02.7	02.7	02.7
10	10	06	.2	01.1	01.9	02.4	02.8	03.1	03.3	03.4	03.6
10	10	06	.3	01.6	02.5	03.0	03.3	03.5	03.7	03.8	03.8
10	10	06	.5	02.4	03.3	03.7	03.8	03.9	04.0	04.0	04.0
10	10	06	.7	03.1	03.8	03.9	04.0	04.0	04.0	04.0	04.0
10	10	06	.9	03.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0
10	10	08	.2	01.5	02.5	03.2	03.7	04.0	04.3	04.5	04.7
10	10	08	.3	02.1	03.3	04.0	04.4	04.7	04.9	05.0	05.1
10	10	08	.5	03.2	04.4	04.8	05.0	05.2	05.2	05.2	05.2
10	10	08	.7	04.2	05.0	05.2	05.2	05.2	05.2	05.3	05.3
10	10	08	.9	04.9	05.2	05.2	05.3	05.3	05.3	05.3	05.3

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{\frac{Bt}{T}}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
10	15	03	.2	00.4	00.7	00.9	01.1	01.2	01.3	01.4	01.4
10	15	03	.3	00.6	00.9	01.2	01.3	01.4	01.5	01.6	01.6
10	15	03	.5	00.9	01.3	01.5	01.6	01.6	01.6	01.7	01.7
10	15	03	.7	01.2	01.5	01.6	01.7	01.7	01.7	01.7	01.7
10	15	03	.9	01.5	01.7	01.7	01.7	01.7	01.7	01.7	01.7
10	15	06	.2	00.8	01.3	01.7	02.0	02.3	02.5	02.6	02.7
10	15	06	.3	01.1	01.8	02.2	02.5	02.7	02.8	02.9	03.0
10	15	06	.5	01.8	02.5	02.8	03.0	03.0	03.1	03.1	03.1
10	15	06	.7	02.3	02.9	03.0	03.1	03.1	03.1	03.1	03.1
10	15	06	.9	02.9	03.1	03.1	03.1	03.1	03.1	03.1	03.1
10	15	09	.2	01.1	02.0	02.6	03.0	03.4	03.6	03.8	04.0
10	15	09	.3	01.7	02.7	03.3	03.7	04.0	04.2	04.3	04.4
10	15	09	.5	02.6	03.7	04.1	04.3	04.5	04.5	04.5	04.5
10	15	09	.7	03.5	04.3	04.5	04.5	04.6	04.6	04.6	04.6
10	15	09	.9	04.2	04.5	04.6	04.6	04.6	04.6	04.6	04.6
10	15	12	.2	01.5	02.6	03.4	04.0	04.4	04.8	05.0	05.2
10	15	12	.3	02.2	03.5	04.4	04.9	05.2	05.5	05.6	05.8
10	15	12	.5	03.5	04.8	05.5	05.7	05.9	05.9	06.0	06.0
10	15	12	.7	04.6	05.6	05.9	06.0	06.0	06.0	06.0	06.0
10	15	12	.9	05.6	06.0	06.0	06.0	06.0	06.0	06.0	06.0
10	20	04	.2	00.4	00.7	00.9	01.1	01.2	01.3	01.4	01.5
10	20	04	.3	00.6	01.0	01.2	01.4	01.5	01.6	01.6	01.7
10	20	04	.5	00.9	01.4	01.6	01.7	01.7	01.7	01.7	01.7
10	20	04	.7	01.3	01.6	01.7	01.7	01.7	01.7	01.7	01.7
10	20	04	.9	01.6	01.7	01.7	01.7	01.7	01.7	01.7	01.7
10	20	08	.2	00.8	01.3	01.8	02.1	02.4	02.6	02.7	02.8
10	20	08	.3	01.1	01.9	02.3	02.6	02.8	03.0	03.1	03.2
10	20	08	.5	01.8	02.6	03.0	03.1	03.2	03.3	03.3	03.3
10	20	08	.7	02.5	03.1	03.2	03.3	03.3	03.3	03.3	03.3
10	20	08	.9	03.0	03.3	03.3	03.3	03.3	03.3	03.3	03.3
10	20	12	.2	01.2	02.0	02.6	03.1	03.5	03.8	04.0	04.2
10	20	12	.3	01.7	02.8	03.4	03.9	04.2	04.4	04.6	04.7
10	20	12	.5	02.7	03.9	04.4	04.6	04.8	04.8	04.9	04.9
10	20	12	.7	03.6	04.5	04.8	04.8	04.9	04.9	04.9	04.9
10	20	12	.9	04.5	04.8	04.9	04.9	04.9	04.9	04.9	04.9
10	20	16	.2	01.5	02.7	03.5	04.2	04.7	05.0	05.3	05.6
10	20	16	.3	02.2	03.7	04.6	05.2	05.6	05.8	06.0	06.2
10	20	16	.5	03.6	05.1	05.8	06.1	06.3	06.4	06.4	06.4
10	20	16	.7	04.8	06.0	06.3	06.4	06.4	06.4	06.5	06.5
10	20	16	.9	05.9	06.4	06.4	06.5	06.5	06.5	06.5	06.5

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{\frac{Bt}{T}}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
20	05	01	.2	00.6	00.8	00.9	01.0	01.0	01.0	01.0	01.0
20	05	01	.3	00.8	00.9	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.5	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
20	05	02	.2	01.1	01.6	01.8	01.9	01.9	01.9	02.0	02.0
20	05	02	.3	01.5	01.8	01.9	02.0	02.0	02.0	02.0	02.0
20	05	02	.5	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	02	.7	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
20	05	03	.2	01.7	02.4	02.6	02.8	02.9	02.9	02.9	02.9
20	05	03	.3	02.2	02.7	02.8	02.9	02.9	03.0	03.0	03.0
20	05	03	.5	02.7	02.9	03.0	03.0	03.0	03.0	03.0	03.0
20	05	03	.7	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	05	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
20	05	04	.2	02.2	03.1	03.5	03.7	03.8	03.8	03.9	03.9
20	05	04	.3	02.9	03.5	03.8	03.9	03.9	03.9	03.9	03.9
20	05	04	.5	03.5	03.9	03.9	03.9	04.0	04.0	04.0	04.0
20	05	04	.7	03.8	03.9	04.0	04.0	04.0	04.0	04.0	04.0
20	05	04	.9	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
20	10	02	.2	00.7	01.1	01.3	01.5	01.6	01.7	01.7	01.8
20	10	02	.3	01.0	01.4	01.6	01.7	01.8	01.8	01.8	01.8
20	10	02	.5	01.4	01.7	01.8	01.8	01.9	01.9	01.9	01.9
20	10	02	.7	01.6	01.8	01.9	01.9	01.9	01.9	01.9	01.9
20	10	02	.9	01.8	01.9	01.9	01.9	01.9	01.9	01.9	01.9
20	10	04	.2	01.3	02.1	02.6	02.9	03.1	03.2	03.3	03.4
20	10	04	.3	01.9	02.7	03.0	03.3	03.4	03.5	03.5	03.5
20	10	04	.5	02.6	03.2	03.4	03.5	03.6	03.6	03.6	03.6
20	10	04	.7	03.1	03.5	03.6	03.6	03.6	03.6	03.6	03.6
20	10	04	.9	03.5	03.6	03.6	03.6	03.6	03.6	03.6	03.6
20	10	06	.2	02.0	03.1	03.8	04.3	04.6	04.8	04.9	05.0
20	10	06	.3	02.8	03.9	04.5	04.8	05.0	05.1	05.2	05.2
20	10	06	.5	03.9	04.8	05.1	05.2	05.3	05.3	05.3	05.3
20	10	06	.7	04.6	05.2	05.3	05.3	05.3	05.3	05.3	05.3
20	10	06	.9	05.1	05.3	05.3	05.3	05.3	05.3	05.3	05.3
20	10	08	.2	02.7	04.2	05.1	05.7	06.0	06.3	06.5	06.6
20	10	08	.3	03.7	05.2	06.0	06.4	06.6	06.8	06.9	06.9
20	10	08	.5	05.2	06.3	06.7	06.9	07.0	07.0	07.0	07.0
20	10	08	.7	06.2	06.8	07.0	07.0	07.1	07.1	07.1	07.1
20	10	08	.9	06.8	07.0	07.1	07.1	07.1	07.1	07.1	07.1

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)\frac{Bt}{T}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
20	15	03	.2	00.7	01.2	01.5	01.8	01.9	02.0	02.1	02.2
20	15	03	.3	01.0	01.6	01.9	02.1	02.2	02.3	02.3	02.3
20	15	03	.5	01.6	02.1	02.2	02.3	02.4	02.4	02.4	02.4
20	15	03	.7	02.0	02.3	02.4	02.4	02.4	02.4	02.4	02.4
20	15	03	.9	02.3	02.4	02.4	02.4	02.4	02.4	02.4	02.4
20	15	06	.2	01.4	02.3	03.0	03.4	03.7	03.9	04.1	04.2
20	15	06	.3	02.0	03.1	03.6	04.0	04.2	04.3	04.4	04.5
20	15	06	.5	03.0	03.9	04.3	04.5	04.5	04.6	04.6	04.6
20	15	06	.7	03.8	04.4	04.5	04.6	04.6	04.6	04.6	04.6
20	15	06	.9	04.4	04.6	04.6	04.6	04.6	04.6	04.6	04.6
20	15	09	.2	02.1	03.5	04.4	05.0	05.5	05.8	06.0	06.2
20	15	09	.3	03.0	04.5	05.4	05.9	06.2	06.4	06.5	06.6
20	15	09	.5	04.5	05.8	06.4	06.6	06.7	06.8	06.8	06.8
20	15	09	.7	05.6	06.5	06.7	06.8	06.8	06.8	06.8	06.8
20	15	09	.9	06.5	06.8	06.8	06.8	06.8	06.8	06.8	06.8
20	15	12	.2	02.8	04.6	05.8	06.6	07.2	07.7	08.0	08.2
20	15	12	.3	04.0	06.0	07.1	07.8	08.2	08.5	08.6	08.8
20	15	12	.5	05.9	07.7	08.4	08.7	08.9	08.9	09.0	09.0
20	15	12	.7	07.4	08.6	08.9	09.0	09.0	09.0	09.0	09.0
20	15	12	.9	08.6	09.0	09.0	09.0	09.0	09.0	09.0	09.0
20	20	04	.2	00.7	01.3	01.6	01.9	02.1	02.2	02.3	02.4
20	20	04	.3	01.1	01.7	02.0	02.3	02.4	02.5	02.6	02.6
20	20	04	.5	01.7	02.3	02.5	02.6	02.7	02.7	02.7	02.7
20	20	04	.7	02.1	02.6	02.7	02.7	02.7	02.7	02.7	02.7
20	20	04	.9	02.6	02.7	02.7	02.7	02.7	02.7	02.7	02.7
20	20	08	.2	01.5	02.5	03.2	03.7	04.0	04.3	04.5	04.7
20	20	08	.3	02.1	03.3	04.0	04.4	04.7	04.9	05.0	05.1
20	20	08	.5	03.2	04.4	04.8	05.0	05.2	05.2	05.2	05.2
20	20	08	.7	04.2	05.0	05.2	05.2	05.2	05.2	05.3	05.3
20	20	08	.9	04.9	05.2	05.2	05.3	05.3	05.3	05.3	05.3
20	20	12	.2	02.2	03.7	04.7	05.4	06.0	06.4	06.7	06.9
20	20	12	.3	03.1	04.9	05.9	06.5	06.9	07.2	07.4	07.5
20	20	12	.5	04.8	06.5	07.2	07.5	07.6	07.7	07.7	07.8
20	20	12	.7	06.2	07.3	07.6	07.7	07.8	07.8	07.8	07.8
20	20	12	.9	07.3	07.7	07.8	07.8	07.8	07.8	07.8	07.8
20	20	16	.2	02.9	04.9	06.3	07.2	07.9	08.5	08.9	09.2
20	20	16	.3	04.2	06.5	07.8	08.7	09.2	09.5	09.8	09.9
20	20	16	.5	06.4	08.6	09.5	09.9	10.1	10.2	10.3	10.3
20	20	16	.7	08.2	09.7	10.1	10.3	10.3	10.3	10.3	10.3
20	20	16	.9	09.7	10.2	10.3	10.3	10.3	10.3	10.3	10.3

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)\frac{Bt}{T}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
30	05	01	.2	00.7	00.9	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.3	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.5	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
30	05	02	.2	01.4	01.8	01.9	02.0	02.0	02.0	02.0	02.0
30	05	02	.3	01.7	01.9	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.5	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	05	03	.2	02.1	02.7	02.9	02.9	03.0	03.0	03.0	03.0
30	05	03	.3	02.5	02.9	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.5	02.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
30	05	04	.2	02.8	03.6	03.8	03.9	04.0	04.0	04.0	04.0
30	05	04	.3	03.4	03.8	03.9	04.0	04.0	04.0	04.0	04.0
30	05	04	.5	03.8	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	05	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
30	10	02	.2	00.9	01.4	01.6	01.8	01.8	01.9	01.9	01.9
30	10	02	.3	01.2	01.7	01.8	01.9	01.9	01.9	01.9	02.0
30	10	02	.5	01.6	01.9	01.9	02.0	02.0	02.0	02.0	02.0
30	10	02	.7	01.8	01.9	02.0	02.0	02.0	02.0	02.0	02.0
30	10	02	.9	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
30	10	04	.2	01.8	02.7	03.2	03.4	03.6	03.7	03.7	03.8
30	10	04	.3	02.4	03.2	03.5	03.7	03.8	03.8	03.8	03.8
30	10	04	.5	03.2	03.7	03.8	03.8	03.9	03.9	03.9	03.9
30	10	04	.7	03.6	03.8	03.9	03.9	03.9	03.9	03.9	03.9
30	10	04	.9	03.8	03.9	03.9	03.9	03.9	03.9	03.9	03.9
30	10	06	.2	02.7	04.0	04.7	05.1	05.3	05.4	05.5	05.6
30	10	06	.3	03.6	04.8	05.3	05.5	05.6	05.7	05.7	05.7
30	10	06	.5	04.7	05.5	05.6	05.7	05.7	05.8	05.8	05.8
30	10	06	.7	05.4	05.7	05.8	05.8	05.8	05.8	05.8	05.8
30	10	06	.9	05.7	05.8	05.8	05.8	05.8	05.8	05.8	05.8
30	10	08	.2	03.6	05.4	06.2	06.7	07.0	07.2	07.3	07.4
30	10	08	.3	04.8	06.4	07.0	07.3	07.4	07.5	07.6	07.6
30	10	08	.5	06.3	07.2	07.5	07.6	07.6	07.7	07.7	07.7
30	10	08	.7	07.1	07.6	07.6	07.7	07.7	07.7	07.7	07.7
30	10	08	.9	07.5	07.7	07.7	07.7	07.7	07.7	07.7	07.7

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{\frac{Bt}{T}}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
30	15	03	.2	01.0	01.6	02.0	02.2	02.3	02.4	02.5	02.6
30	15	03	.3	01.4	02.0	02.3	02.5	02.6	02.6	02.7	02.7
30	15	03	.5	02.0	02.5	02.6	02.7	02.7	02.7	02.7	02.7
30	15	03	.7	02.4	02.7	02.7	02.7	02.7	02.7	02.7	02.7
30	15	03	.9	02.6	02.7	02.7	02.7	02.7	02.7	02.7	02.7
30	15	06	.2	02.0	03.1	03.8	04.3	04.6	04.8	04.9	05.0
30	15	06	.3	02.8	03.9	04.5	04.8	05.0	05.1	05.2	05.2
30	15	06	.5	03.9	04.8	05.1	05.2	05.3	05.3	05.3	05.3
30	15	06	.7	04.6	05.2	05.3	05.3	05.3	05.3	05.3	05.3
30	15	06	.9	05.1	05.3	05.3	05.3	05.3	05.3	05.3	05.3
30	15	09	.2	03.0	04.7	05.7	06.3	06.8	07.1	07.3	07.4
30	15	09	.3	04.1	05.9	06.7	07.2	07.4	07.6	07.7	07.8
30	15	09	.5	05.8	07.1	07.6	07.8	07.8	07.9	07.9	07.9
30	15	09	.7	06.9	07.7	07.9	07.9	07.9	07.9	07.9	07.9
30	15	09	.9	07.6	07.9	07.9	07.9	07.9	07.9	07.9	07.9
30	15	12	.2	04.0	06.2	07.6	08.4	09.0	09.4	09.7	09.9
30	15	12	.3	05.5	07.8	08.9	09.5	09.9	10.1	10.2	10.3
30	15	12	.5	07.7	09.5	10.1	10.3	10.4	10.5	10.5	10.5
30	15	12	.7	09.2	10.2	10.4	10.5	10.5	10.5	10.5	10.5
30	15	12	.9	10.2	10.5	10.5	10.5	10.5	10.5	10.5	10.5
30	20	04	.2	01.1	01.7	02.2	02.5	02.7	02.8	02.9	03.0
30	20	04	.3	01.5	02.2	02.6	02.9	03.0	03.1	03.2	03.2
30	20	04	.5	02.2	02.8	03.1	03.2	03.2	03.3	03.3	03.3
30	20	04	.7	02.7	03.1	03.2	03.3	03.3	03.3	03.3	03.3
30	20	04	.9	03.1	03.3	03.3	03.3	03.3	03.3	03.3	03.3
30	20	08	.2	02.1	03.4	04.2	04.8	05.2	05.5	05.7	05.9
30	20	08	.3	02.9	04.4	05.1	05.6	05.9	06.0	06.1	06.2
30	20	08	.5	04.3	05.5	06.0	06.2	06.3	06.3	06.4	06.4
30	20	08	.7	05.3	06.1	06.3	06.4	06.4	06.4	06.4	06.4
30	20	08	.9	06.1	06.4	06.4	06.4	06.4	06.4	06.4	06.4
30	20	12	.2	03.1	05.1	06.3	07.2	07.7	08.2	08.5	08.7
30	20	12	.3	04.4	06.5	07.6	08.3	08.7	09.0	09.1	09.2
30	20	12	.5	06.4	08.2	08.9	09.2	09.4	09.4	09.5	09.5
30	20	12	.7	07.9	09.1	09.4	09.5	09.5	09.5	09.5	09.5
30	20	12	.9	09.1	09.5	09.5	09.5	09.5	09.5	09.5	09.5
30	20	16	.2	04.2	06.7	08.4	09.5	10.3	10.8	11.3	11.6
30	20	16	.3	05.8	08.6	10.2	11.0	11.6	11.9	12.1	12.3
30	20	16	.5	08.5	10.9	11.9	12.2	12.4	12.5	12.6	12.6
30	20	16	.7	10.5	12.1	12.5	12.6	12.6	12.6	12.6	12.6
30	20	16	.9	12.0	12.5	12.6	12.6	12.6	12.6	12.6	12.6

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{\frac{Bt}{T}}\right]$$

B	T	t	p	m/B = 1	2	3	4	5	6	7	8
40	05	01	.2	00.8	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.3	00.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.5	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.7	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	01	.9	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
40	05	02	.2	01.6	01.9	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.3	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.5	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.7	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	05	03	.2	02.4	02.9	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.3	02.8	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.5	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.7	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	03	.9	03.0	03.0	03.0	03.0	03.0	03.0	03.0	03.0
40	05	04	.2	03.2	03.8	03.9	04.0	04.0	04.0	04.0	04.0
40	05	04	.3	03.7	03.9	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.5	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.7	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	05	04	.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	02	.2	01.1	01.6	01.8	01.9	01.9	01.9	02.0	02.0
40	10	02	.3	01.5	01.8	01.9	02.0	02.0	02.0	02.0	02.0
40	10	02	.5	01.8	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	02	.7	01.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	02	.9	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
40	10	04	.2	02.2	03.1	03.5	03.7	03.8	03.8	03.9	03.9
40	10	04	.3	02.9	03.5	03.8	03.9	03.9	03.9	03.9	03.9
40	10	04	.5	03.5	03.9	03.9	03.9	04.0	04.0	04.0	04.0
40	10	04	.7	03.8	03.9	04.0	04.0	04.0	04.0	04.0	04.0
40	10	04	.9	03.9	04.0	04.0	04.0	04.0	04.0	04.0	04.0
40	10	06	.2	03.3	04.6	05.2	05.5	05.7	05.7	05.8	05.8
40	10	06	.3	04.2	05.3	05.6	05.8	05.8	05.9	05.9	05.9
40	10	06	.5	05.3	05.8	05.9	05.9	05.9	05.9	05.9	05.9
40	10	06	.7	05.7	05.9	05.9	05.9	05.9	05.9	05.9	05.9
40	10	06	.9	05.9	05.9	05.9	05.9	05.9	05.9	05.9	05.9
40	10	08	.2	04.4	06.2	06.9	07.3	07.5	07.6	07.7	07.8
40	10	08	.3	05.6	07.0	07.5	07.7	07.8	07.8	07.8	07.9
40	10	08	.5	07.0	07.7	07.8	07.9	07.9	07.9	07.9	07.9
40	10	08	.7	07.6	07.8	07.9	07.9	07.9	07.9	07.9	07.9
40	10	08	.9	07.8	07.9	07.9	07.9	07.9	07.9	07.9	07.9

$$D(T,t) = t\left[1-\left(1-\frac{1-a}{t}\right)^{\frac{Bt}{T}}\right]$$

B	T	t	p	m/B 1	2	3	4	5	6	7	8
40	15	03	.2	01.3	01.9	02.3	02.5	02.6	02.7	02.7	02.8
40	15	03	.3	01.7	02.3	02.6	02.7	02.8	02.8	02.8	02.9
40	15	03	.5	02.3	02.7	02.8	02.9	02.9	02.9	02.9	02.9
40	15	03	.7	02.6	02.8	02.9	02.9	02.9	02.9	02.9	02.9
40	15	03	.9	02.8	02.9	02.9	02.9	02.9	02.9	02.9	02.9
40	15	06	.2	02.5	03.8	04.5	04.9	05.1	05.3	05.4	05.4
40	15	06	.3	03.4	04.6	05.1	05.3	05.4	05.5	05.6	05.6
40	15	06	.5	04.5	05.3	05.5	05.6	05.6	05.7	05.7	05.7
40	15	06	.7	05.2	05.6	05.6	05.7	05.7	05.7	05.7	05.7
40	15	06	.9	05.6	05.7	05.7	05.7	05.7	05.7	05.7	05.7
40	15	09	.2	03.8	05.6	06.6	07.2	07.6	07.8	08.0	08.1
40	15	09	.3	05.0	06.8	07.5	07.9	08.1	08.2	08.3	08.4
40	15	09	.5	06.7	07.9	08.2	08.4	08.4	08.4	08.5	08.5
40	15	09	.7	07.7	08.3	08.4	08.5	08.5	08.5	08.5	08.5
40	15	09	.9	08.3	08.5	08.5	08.5	08.5	08.5	08.5	08.5
40	15	12	.2	05.0	07.5	08.8	09.6	10.1	10.4	10.6	10.8
40	15	12	.3	06.7	09.0	10.0	10.5	10.8	11.0	11.1	11.1
40	15	12	.5	08.9	10.5	10.9	11.1	11.2	11.2	11.2	11.3
40	15	12	.7	10.2	11.0	11.2	11.2	11.3	11.3	11.3	11.3
40	15	12	.9	11.0	11.2	11.3	11.3	11.3	11.3	11.3	11.3
40	20	04	.2	01.3	02.1	02.6	02.9	03.1	03.2	03.3	03.4
40	20	04	.3	01.9	02.7	03.0	03.3	03.4	03.5	03.5	03.5
40	20	04	.5	02.6	03.2	03.4	03.5	03.6	03.6	03.6	03.6
40	20	04	.7	03.1	03.5	03.6	03.6	03.6	03.6	03.6	03.6
40	20	04	.9	03.5	03.6	03.6	03.6	03.6	03.6	03.6	03.6
40	20	08	.2	02.7	04.2	05.1	05.7	06.0	06.3	06.5	06.6
40	20	08	.3	03.7	05.2	06.0	06.4	06.6	06.8	06.9	06.9
40	20	08	.5	05.2	06.3	06.7	06.9	07.0	07.0	07.0	07.0
40	20	08	.7	06.2	06.8	07.0	07.0	07.1	07.1	07.1	07.1
40	20	08	.9	06.8	07.0	07.1	07.1	07.1	07.1	07.1	07.1
40	20	12	.2	04.0	06.2	07.6	08.4	09.0	09.4	09.7	09.9
40	20	12	.3	05.5	07.8	08.9	09.5	09.9	10.1	10.2	10.3
40	20	12	.5	07.7	09.5	10.1	10.3	10.4	10.5	10.5	10.5
40	20	12	.7	09.2	10.2	10.4	10.5	10.5	10.5	10.5	10.5
40	20	12	.9	10.2	10.5	10.5	10.5	10.5	10.5	10.5	10.5
40	20	16	.2	05.3	08.3	10.1	11.2	11.9	12.5	12.8	13.1
40	20	16	.3	07.3	10.3	11.8	12.6	13.1	13.4	13.6	13.7
40	20	16	.5	10.2	12.6	13.4	13.7	13.8	13.9	13.9	14.0
40	20	16	.7	12.2	13.5	13.9	13.9	14.0	14.0	14.0	14.0
40	20	16	.9	13.5	13.9	14.0	14.0	14.0	14.0	14.0	14.0

Loss in Attrition
Due to Degradation of Information

as dependent on number of shots per battery (m/B)
for different characteristic kill probabilities (p)

(For definitions see p. 1)

10 Batteries, 5 Targets
Information on 1 target

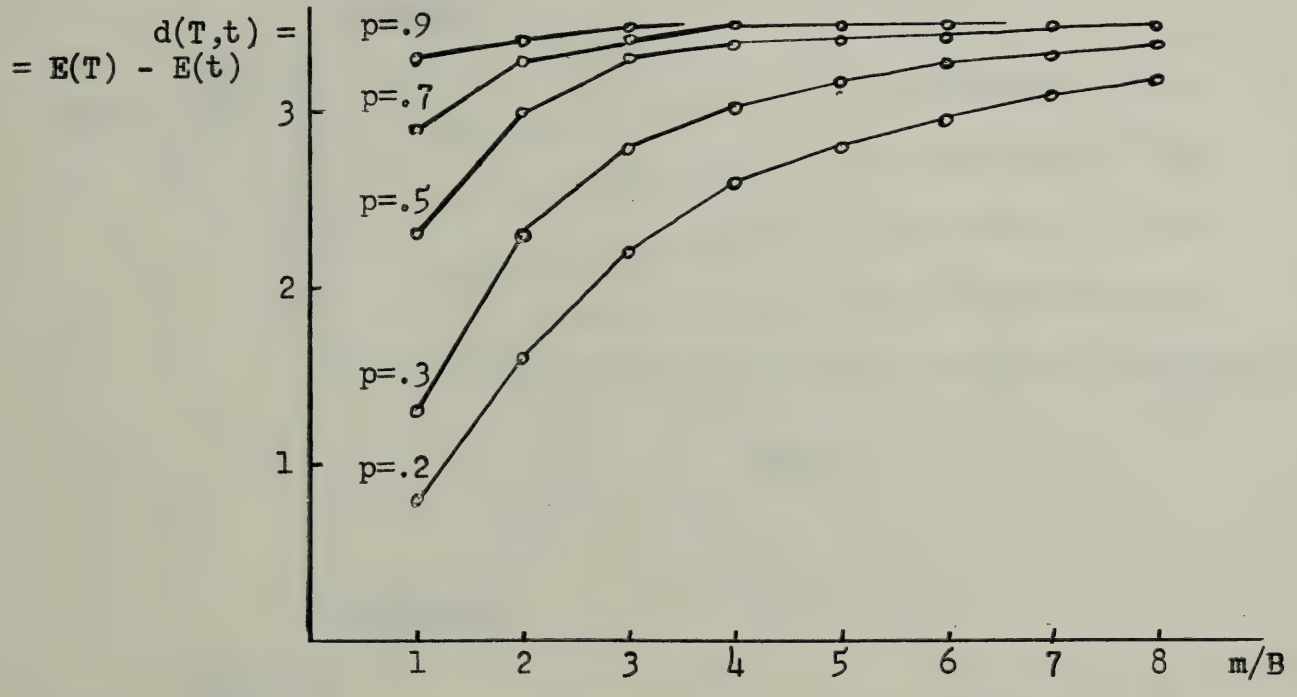


Figure 1

40 Batteries, 20 Targets
Information on 16 targets

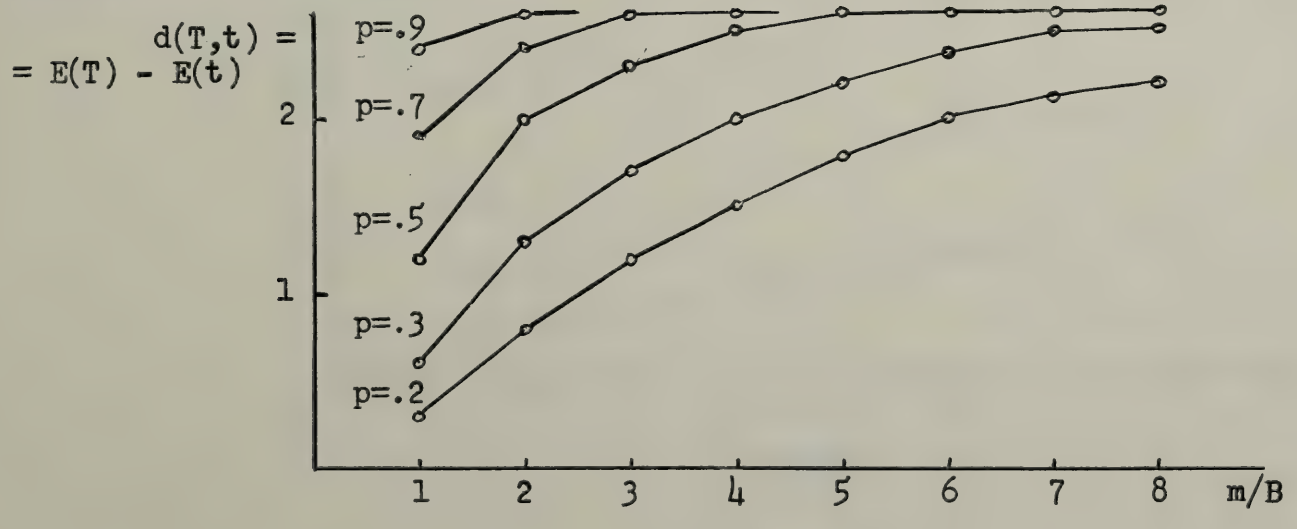


Figure 2

Loss in Attrition
Due to Degradation of Information

as dependent on number of batteries (B)
for different numbers of targets on which information is received (t)
Characteristic Kill Probability p =.5
Shots per battery m/B = 4.

(For definitions see p. 1)

5 Targets

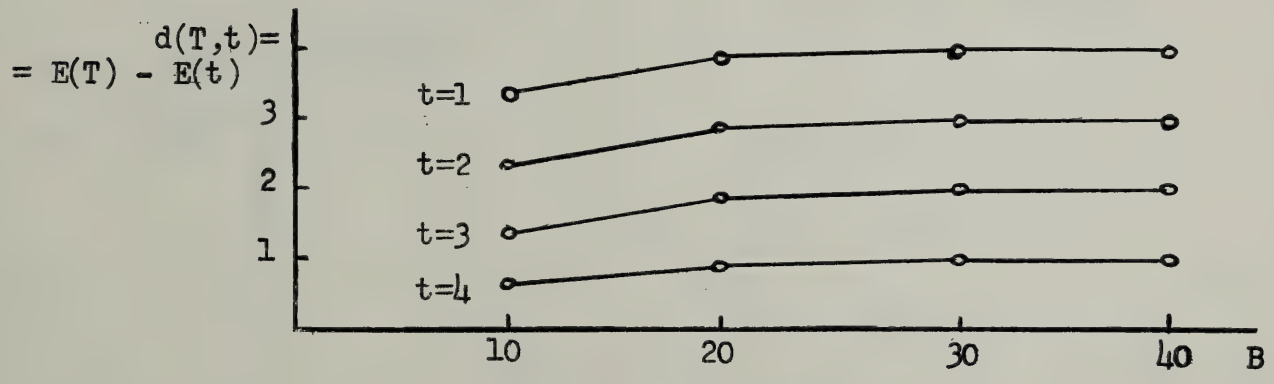


Figure 3

10 Targets

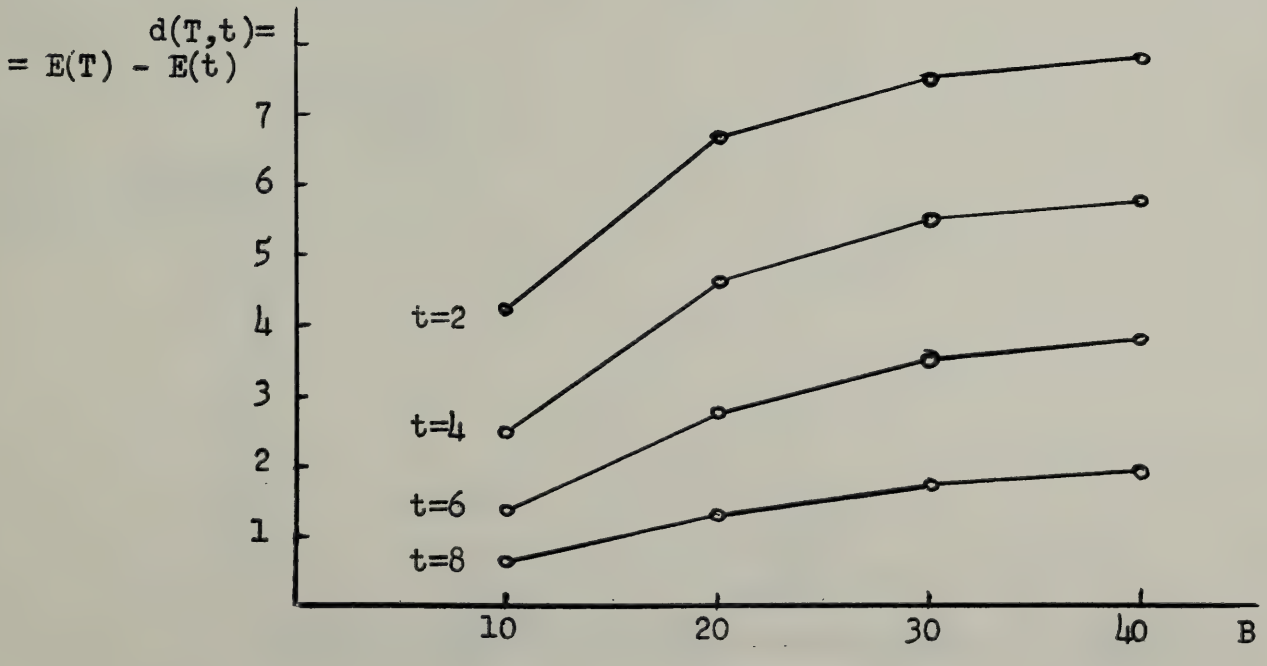


Figure 4

Loss in Attrition
Due to Degradation of Information

as dependent on number of batteries (B)
for different numbers of targets on which information is received (t)
Characteristic Kill Probability p = .5
Shots per battery m/B = 4.

(For definitions see p. 1)

15 Targets

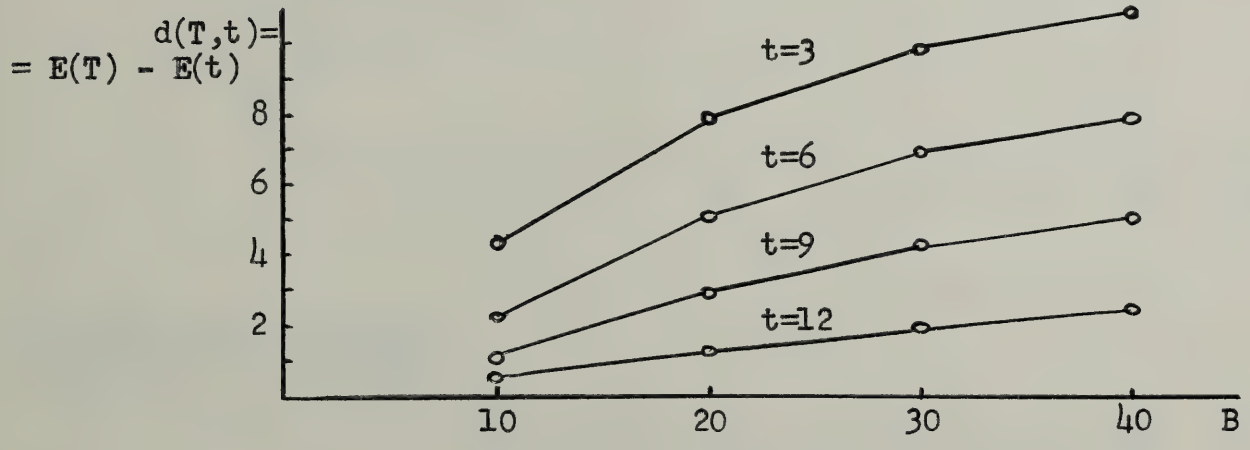


Figure 5

20 Targets

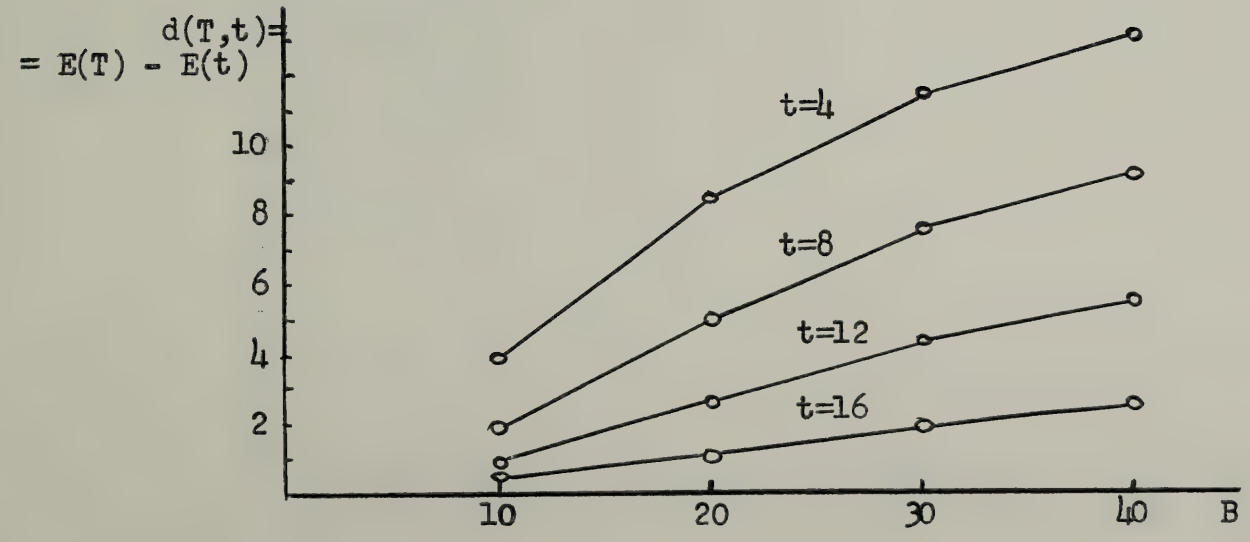


Figure 6

Remaining Attrition
After Degradation of Information

as dependent on number of shots per battery (m/B)
for different characteristic kill probabilities (p)

(For definitions see p. 10)

10 Batteries, 5 Targets
Information on 4 targets

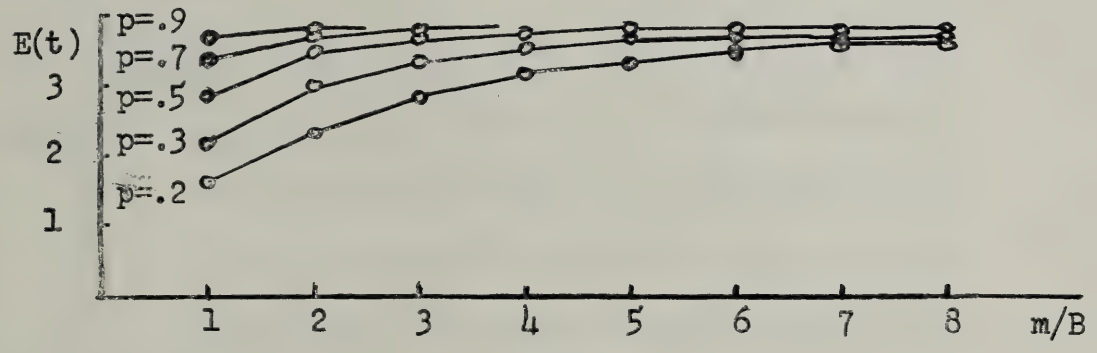


Figure 7

40 Batteries, 20 Targets
Information on 12 targets

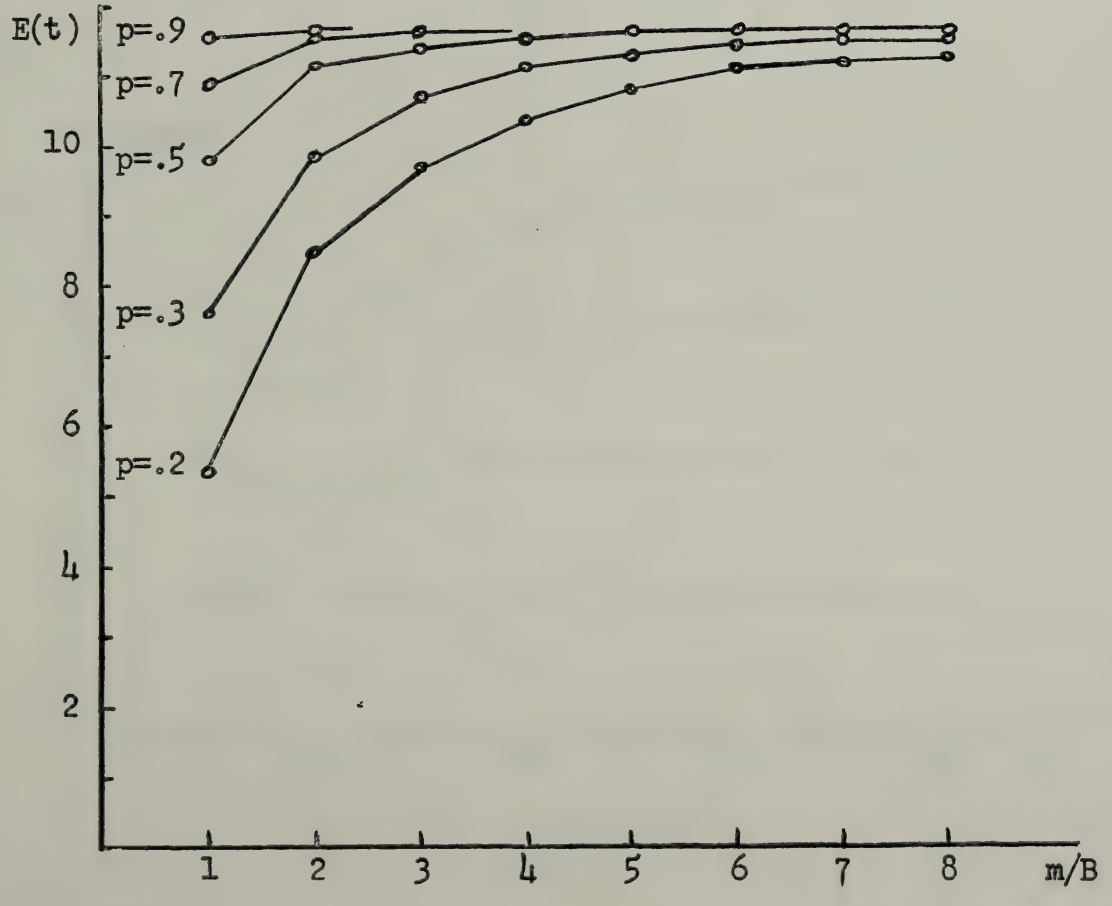


Figure 8

Remaining Attrition After Degradation of Information

as dependent on number of batteries (B)
for different numbers of targets on which information is received (t)
Characteristic kill probability p = .5
Shots per battery m/B = 4

(For definitions see p. 10)

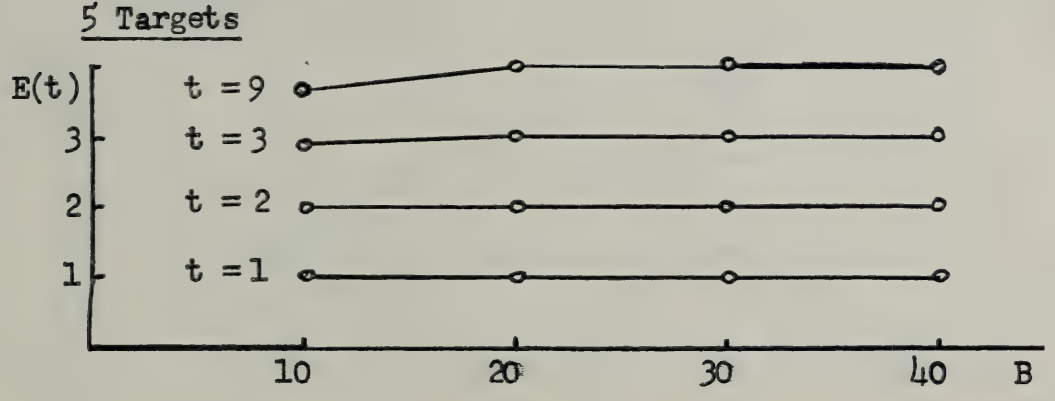


Figure 9

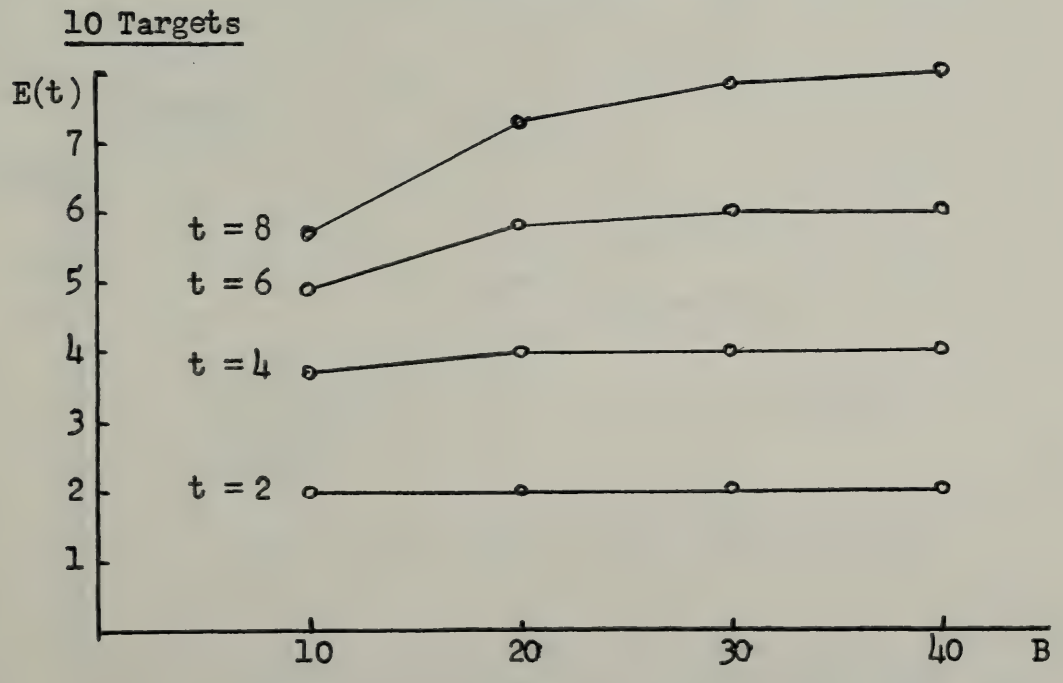


Figure 10

Remaining Attrition
After Degradation of Information

as dependent on number of batteries (B)
for different numbers of targets on which information is received (t)
Characteristic kill probability p = .5
Shots per battery m/B = 4

(For definitions see p. 10)

15 Targets

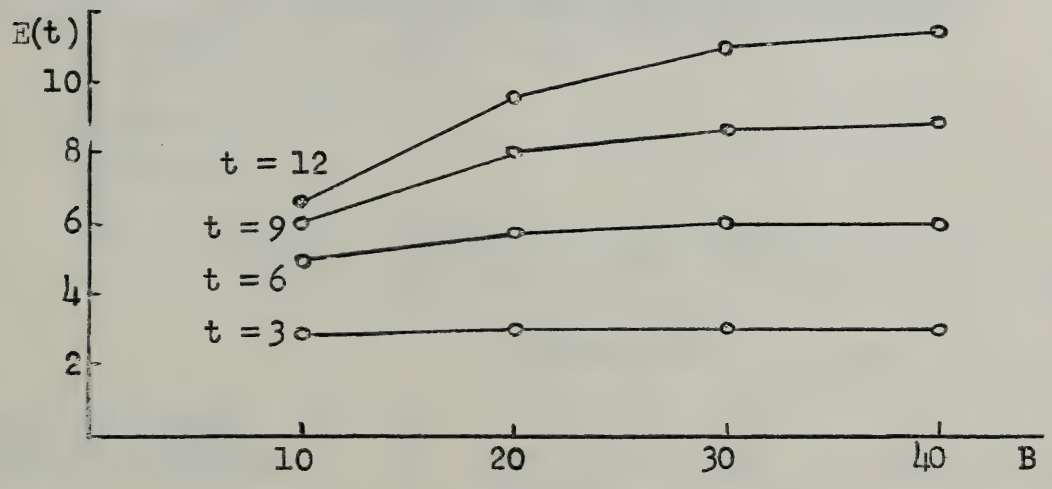


Figure 11

20 Targets

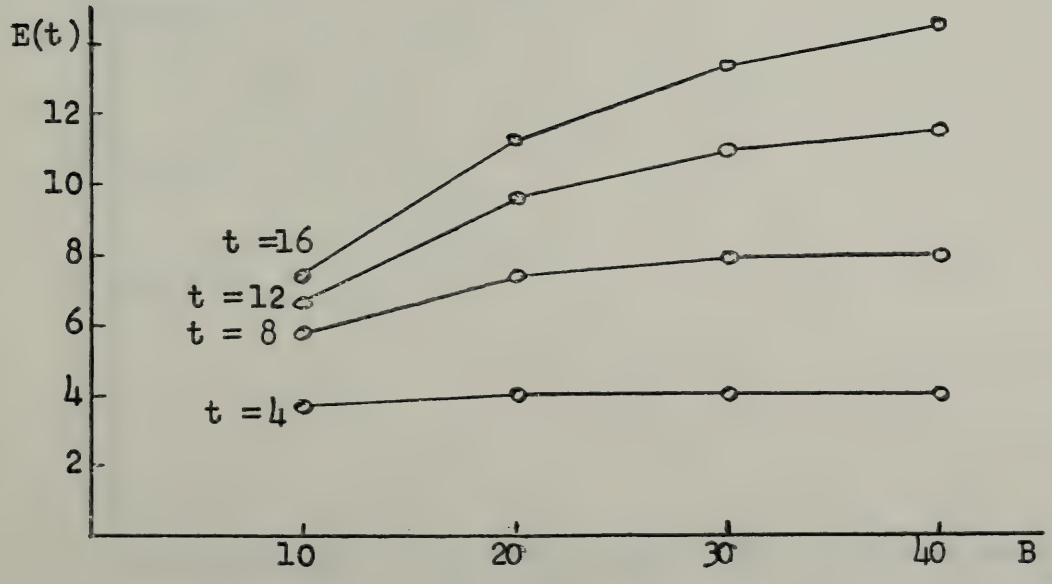


Figure 12

Remaining Attrition After Reserving Batteries to Allow for Degradation of Information

as dependent on number of shots per battery (m/B)
for different characteristic kill probabilities (p)

(For definitions see p. 19)

10 Batteries, 5 Targets
Information on 4 targets

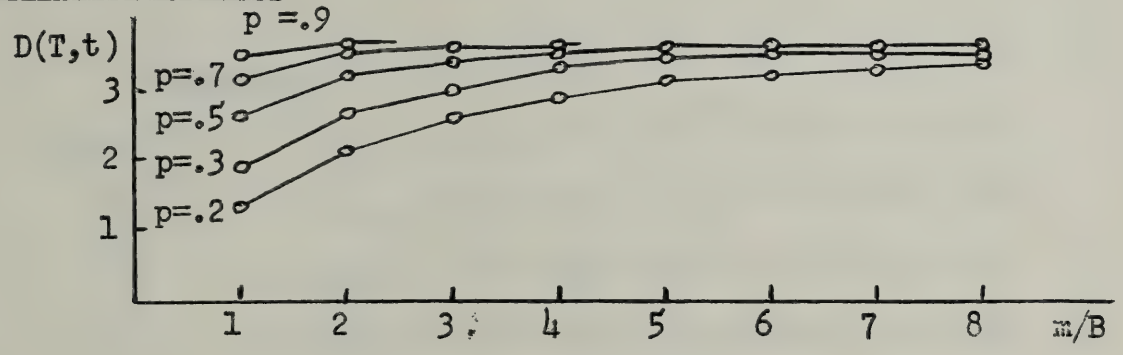


Figure 13

40 Batteries, 20 Targets
Information on 12 targets

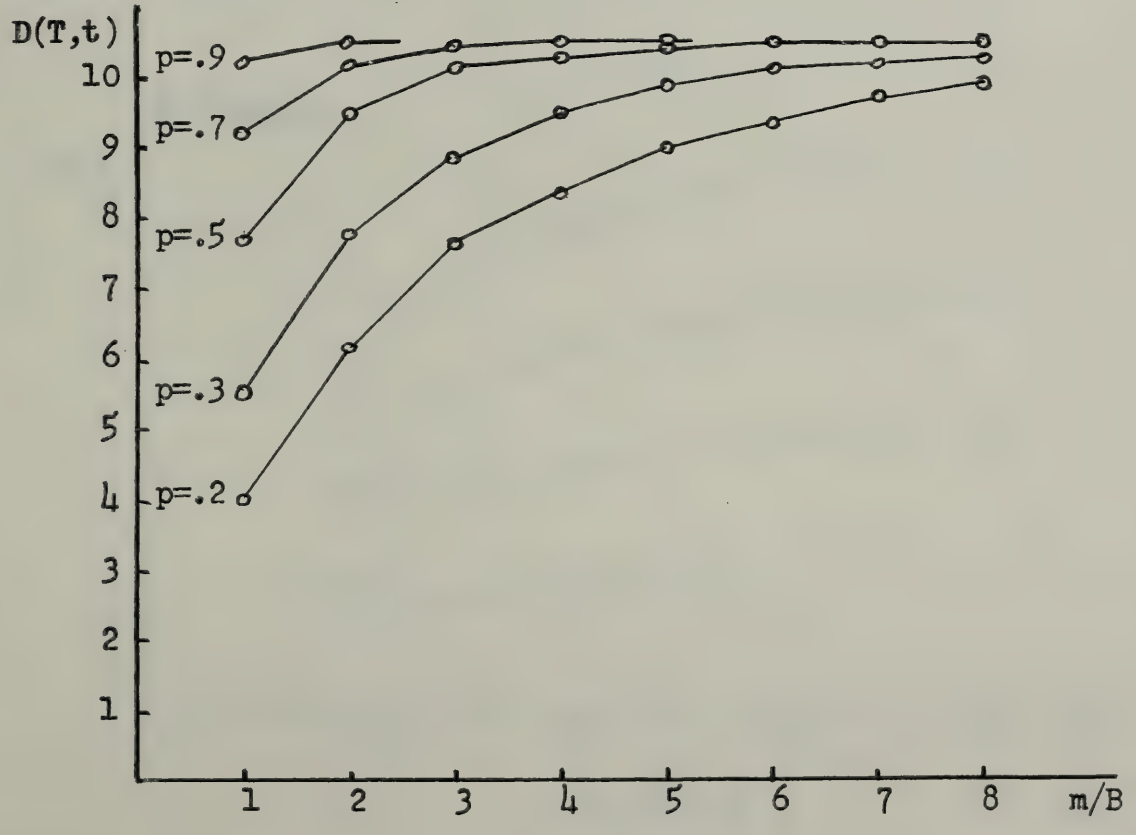


Figure 14

Remaining Attrition After Reserving Batteries to Allow for Degradation of Information

as dependent on number of batteries (B)
for different numbers of targets on which information is received (t)
Characteristic kill probability p = .5
Shots per battery m/B = 4

(For definitions see p. 19)

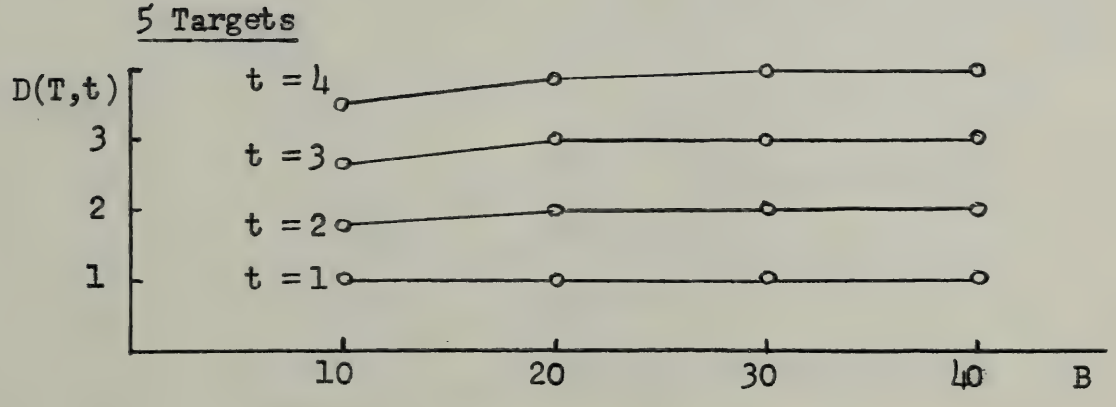


Figure 15

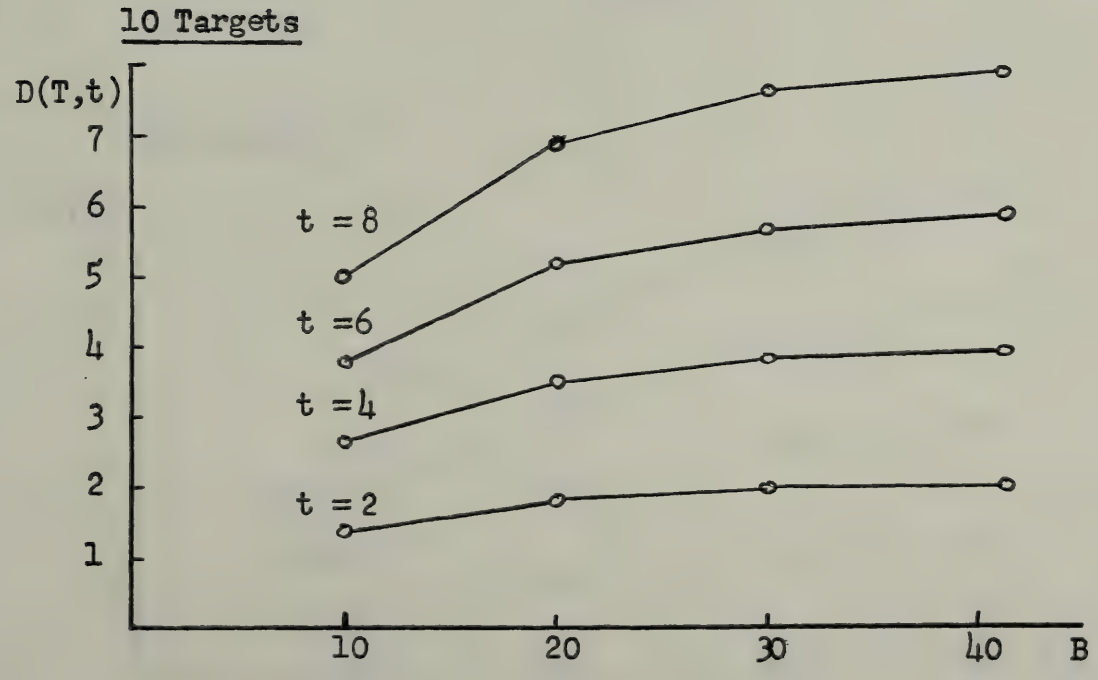


Figure 16

Remaining Attrition After Reserving Batteries to Allow for Degradation of Information

as dependent on number of batteries (B)
for different numbers of targets on which information is received (t)
Characteristic kill probability p = .5
Shots per battery m/B = 4

(For definitions see p. 19)

15 Targets

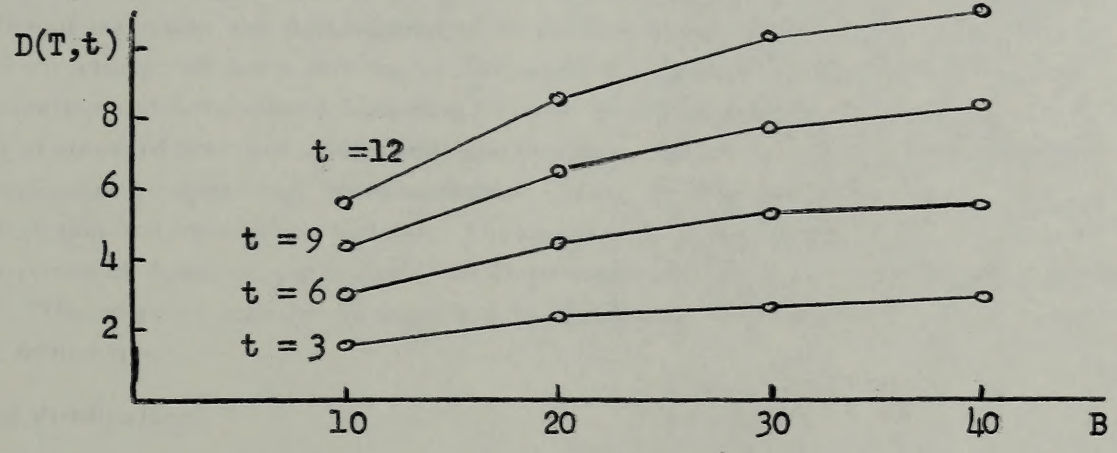


Figure 17

20 Targets

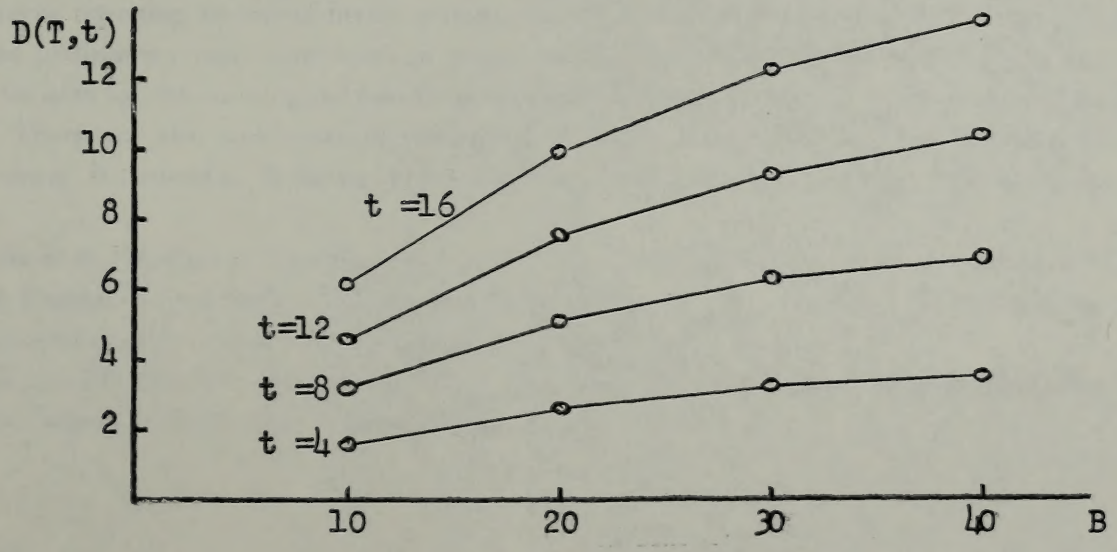
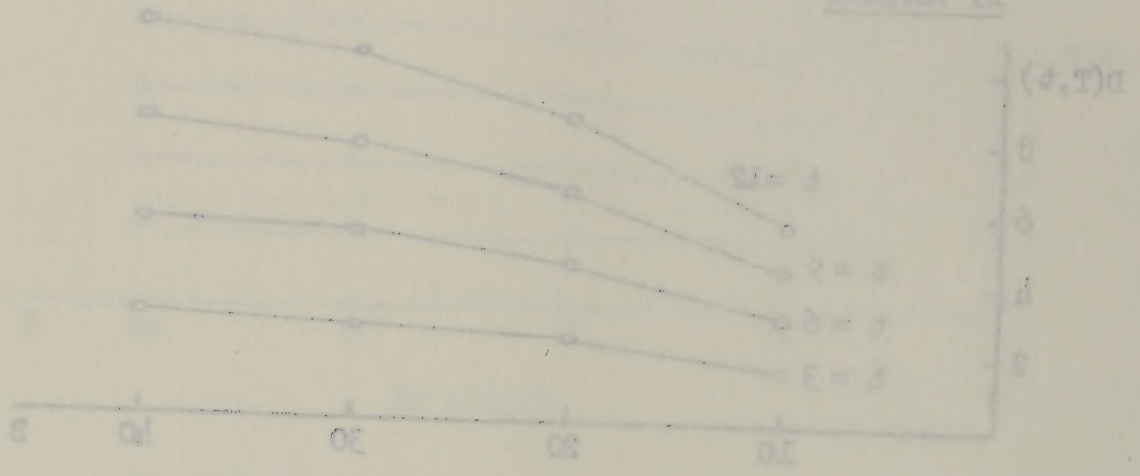
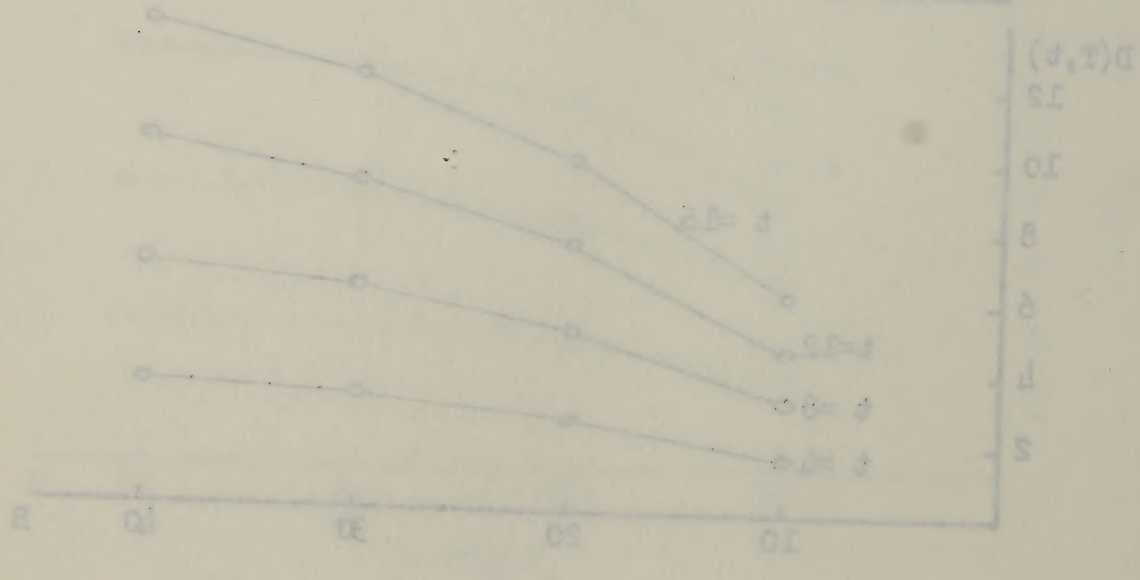


Figure 18


D(T,t)
10
20
30
40


D(T,t)
10
20
30
40

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